OCT 1997

Bee Culture

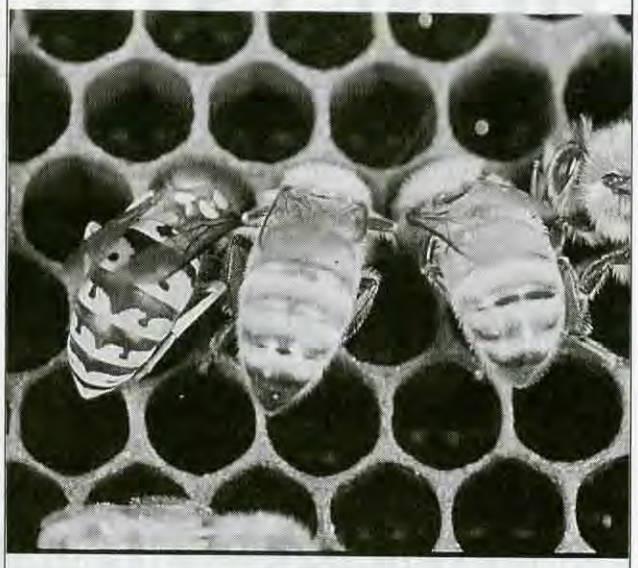
INSIDE

Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

OCTOBER 1997 VOLUME 125 NUMBER 10

FEATURES



COVER

Yellow Jackets are often considered a problem by beekeepers because of the damage they can do to a colony. In fact yellow jackets can cause all kinds of problems. Weak colonies can be robbed of honey stores, attacking yellow jackets can, and will kill defending honey bees, either in their attempts to get inside, or simply to consume the hapless honey bee defenders.

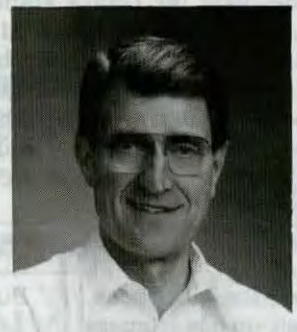
Often, a beekeeper will find a dead, or nearly dead colony full of yellow jackets and blame them for the colony's demise. This is rarely the case, however. Yellow jackets are opportunists, and take advantage of weak or diseased colonies to rob stores, or use honey bees for their brood's food.

This photo, by Mary Ann Frazier, Extension Specialist from PA, shows a more benign side. While stealing lunch, this yellow jacket seems right at home, and accepted by the honey bees.

DEALING WITH FOULBROOD

DEPARTMENTS

COLUMNS



JOHN ROOT
Publisher

KIM FLOTTUM
Editor

INNER COVER

American foulbrood, and to a somewhat lesser degree, European foulbrood have not gone away. They still kill or debilitate colonies from coast to coast, border to border. Every year.

This past season outbreaks of monumental proportions were reported in parts of the Midwest and Northeast in several commercial and many sideline and hobby operations. Why? And as important, what becomes of those colonies and equipment polluted with this menace? Fire? Or sold away?

The why is the most difficult to understand. Both of these diseases are easy to prevent, easy to detect and easy to control. But easy does not mean inexpensive. In medications or in labor required to apply them.

But with the labor market tight, legal mite control expenses cutting into profit margins, a touch of greed showing up on occasion, and honey prices unstable, foulbrood prevention and control too often get short changed.

Or maybe it's not as easy as I thought. Maybe prevention, detection and control are lost (or never obtained) skills. Or are those skills being ignored?

The articles on foulbrood this month should provide all the information necessary to prevent, detect and control American and European foulbrood. But two new things need to be known. First, the labels have changed. Pfizer (the company that manufactures Terramycin) modified their recommendations somewhat in the length of time required between removal and start of the honey flow. It's now 45 days, not 30, from removal of medications to beginning of honey flow. That changes the way these diseases are managed, at least in the Spring.

And second, using extender patties, with an inappropriate amount of medication has led to serious problems. Rumors, and more than rumors of resistance by the disease to our only medication have surfaced the last two years. Continued abuse, neglect or ignorance will only increase the likelihood of serious problems in this arena. Check out the articles, the formulation guide and the label. And don't let foulbrood get the best of your operation.

•

I spent a week or so in Arizona in August attending the Western Apicultural Society meeting. There was lots to report from there, which I'll get to later. It was the side trips that were enlightening. One was to a remote and desolate (by Ohio's standards) USDA bee yard, surrounded by a 10-foot fence (with barbed wire on top), containing a dozen or so colonies of African honey bees.

I went, per instruction, bundled to the nth degree. Full suit, gloves, taped cuffs and zippers – complete armor. The yard was a half mile or so off a not-too-traveled road, and if you didn't know exactly where this yard was you'd never find it. A security precaution that probably works well.

Before my visit I had visions of starting this story something like the following . . .

"It was 103° the day I met the killer bees . . ." But that sort of melodrama is best left to bad novels, I guess.

It was 103° that day, though. That's hot. Hotter in a full bee suit. And, as it turns out, too hot for the bees. Most of the colonies were opened and examined and there were definitely more bees in the air than I've ever experienced. But they were stinging very little and there weren't millions (but thousands, certainly) in the air. And after a few minutes they'd retreat back inside.

I had a camera with me, an all black camera with a black strap and there were times I couldn't take a photo because the lens was completely covered. The strap, a kind of canvas material, was under attack almost constantly. But though there

Continued on Page 62

Foulbrood – Detection & Control; A Visit With African Honey Bees

POSTAL RATE HIKE PROPOSAL

What do chicks, worms, lab rats, crickets and honey bees have in common? When sent through the U.S. Postal Service they must be mailed under the protection of 'Special Handling.' Right now, this protection costs you $5.40 *extra* postage for a single 3 lb. package of bees. The Post Office wants to raise that fee to $17.25. That's an $11.85 *increase* in the cost of a package.

The USPS filed this rate increase proposal to the Postal Rate Commission in July. It takes about 10 months to go through the process, including public hearings, then another two to three months to get acted on. My contact at the PRC thinks the increase, if allowed, would probably go into effect by the Fall of 1998.

Hearings are scheduled in October (6-22), January (7-23), and February (10-20). We'll have more as this unfolds, but now is the time to consider alternative delivery of packages for your club, or your business.

For lots of information, check out the PRC's web page at www.prc.gov, and look under Docket R97-1.

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Bee Culture

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Publisher ..... **John Root**

Associate Publisher ..... **Robert Stanners**

Editor ..... **Kim Flottum**

Production Coordinator ..... **Kathy Summers**

Circulation & Advertising ..... **Dawn Feagan**

Publications Assistant ..... **Mary Weigley**

Contributors ..... **Richard Bonney, Roger Morse, Richard Taylor, Mark Winston, Clarence Collison, Ann Harman, B.A. Stringer, James E. Tew**

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Write: Editor, 623 W. Liberty St., Medina, OH 44256
FAX: 330-725-5624
EMAIL: BCULTURE@AOL.COM

MAILBOX

The Right Way!

I was re-reading the June 1996 issue of *Bee Culture* and happened across the many articles on mites. It brought to mind my treatment of hives and so I thought I would share it with others.

I was thinking about my bees in the Winter of 95-96 and I got to thinking of the *Varroa* mites. The *Varroa* mite raises it's young at the same time the bees raise theirs. No brood being raised = no mites being born. I got to thinking that it is just plain common sense that if you kill the mites while there is no brood, you could almost eliminate the mites.

I got on the phone and traced down the manufacturer of the Apistan strips and asked to speak with one of their chemists. He told me I was correct in my thinking and that they had recommended for years that it be done this way. I asked if it would harm the bees to be in constant contact with the Apistan during the Winter cluster. He said it would not harm the bees.

Here is the way I treat my hives. On January 1st, weather allowing, I put Apistan strips in all my hives. I leave them there for approximately eight weeks. I remove them about March 1st. There is almost no brood in January and brood rearing here in central North Carolina starts about February 1st. Most *Varroa* are killed in the first four weeks that no brood is being raised. I take them out so I can take advantage of our first good honey flow which is the Sumac about April 1st and Tulip Poplar about April 20th.

Our honey flow ends here almost exactly the end of July. Many hives stop raising brood at this time also. They restart when the Fall Goldenrod flow starts about August 15th. I take my supers off in July as the supers are filled, and let the bees have any that they collect after that. I put my Apistan and menthol in at the same time I take off the supers. It works great but cost is a little higher for treating twice a year. Cheaper than package bees to replace them though. I haven't lost a hive but I have only been doing it this way for two years. It may work better than hoped for though. I had more bees than ever before and because of that, more hives trying to swarm than ever before. I managed to stop all of them from swarming but one, and had a great honey crop.

Frank Chamberlin
Asheboro, NC

***Editor's Note**: You have hit the nail on the head as far as treatment is concerned. An early Spring and late Summer treatment are recommended. A quick test (ether roll, sticky board) may allow you to forgo a treatment if no mites are found.*

Information Recycled

In the August 1997 issue of your magazine, page 19, you make the following comment: "Doolittle was still one of the most prolific writers around, and in June produced one of the best articles on how to find the queen in a populous colony, I've read. I could publish it today." Why don't you?

It seems that a good article is a good article. I have just had to pay $33.00 for three short articles that appeared in the *American Bee Journal* about Vitex. One was printed in 1966, one in 67, and one in 79. If they were worth reading then and were worth writing about this many times, they are worth reading about today. I am a fairly new beekeeper compared to some and I didn't get to read the articles the first time. I save every issue of *ABJ* and *BC* so I can re-read an article when I need information. Articles on finding a queen, honey plants that flower the longest and give the most honey (especially for plantings). How not to crush queens while examining hives, how to judge the potential of an apiary location, etc., never get old.

You could re-print one article a month or, if there are enough great ones, print a book(let) with all of them in it. After all, you are in the printing-to-make-money game. We win, you win, the bees win and future generations of beekeepers win. If you can get permission from other publishers, you could even include some very old, out of print articles from other books. You might even add one article to another if part of it was covered in one article and a different aspect of it was covered in a later article. As an example, Vitex blooms for months, and Vitex *negando incisa* were both written by M. Pellet in 1967 and 79. Also Ton of honey per acre with Vitex by V.A. Croley (1966). These could be re-written into one article or all three could be printed at once. That's the ones I just paid to get.

Frank Chamberlin
Asheboro, NC

***Editor's Note:** It is true that many things in beekeeping don't change. But many do. To reprint an older article, with out-of-date or erroneous information would be a disservice to our readers. We do, however, recycle (if you will) important 'topics' such as you mentioned that are current and up-to-date. Or, at least, written by other authors. Also we publish books from time to time focusing on particular subjects (*Queen Mgt., Swarming, Marketing *and soon,* Wintering*). Also, we update our* ABC & XYZ *with new information (another update is in the works now), routinely.*

Richard Shines

Re: August issue of *Bee Culture,* Richard Taylor's column. Richard Taylor never fails!

I continue to enjoy your magazine.

Bill Morrison
Shippensburg, PA

Continued on Next Page

MAILBOX

21st Century Begins?

The 1900s began in 1900. The 20th century began in 1901. I hope the *Bee Culture* editor of the late 90s of the next century doesn't find your remark and include it in his series on 225 years of Root publications!

Kendal Smucker
Bellefontaine, OH

BC Abroad

I received your magazine 15 days ago and after reading it brought it to my classmates. It is very interesting for us to read such a good magazine with over a century experience.

When I showed your magazine to my teacher, she told me when she was in the U.S. she had read it and used it very much.

The purpose of this letter is to thank you for sending your magazine to me.

Kamran Malek Pour
Tehran, Iran

Apistan vs. Oils

I subscribed to your magazine to find out all I could on how to treat mites. Much to my surprise, there has been almost nothing in your magazine about the control of the mite, but I have read between the lines, and picked up on one thing. You seem determined not to let anyone know that there is anything else in the world for the *Varroa* mite, except for Apistan strips. It seems that you're scared to death, that someone else will come along and be in competition with your Apistan strips.

Bob Noel's (Cumberland, Maryland) work with the oils for two years 1995 and 1996, has proven conclusively that there is a cheaper, better way to treat for mites.

I have used the oils and have had the same results that he did. I like your magazine real well, except for your attitude concerning the Apistan strips.

Norman Wallin
Chilhowie, VA

Midwest Crop Low

We have returned from Pierre, SD, where the annual meeting of the Mid U.S. Honey Marketing Association was held. Our purpose was to ascertain the crop in the Midwest, which included Montana, North and South Dakota, Wyoming, Nebraska, Kansas, Minnesota, along with Wisconsin. The producers present, represented close to eight million pounds of honey and 109,000 colonies of bees.

The annual survey indicated a short crop of white honey in the heartland at 75% of the normal. This was attributed to cool and rainy weather, along with, an off clover year in South Dakota. This indicated to the Mid U.S. Honey Producers, that prices for white honey will be moving higher and has done so already. The packers first offerings have been reported in the low 70s, and has already moved to the 80s. Mid U.S. Honey Producers believe that $1.00 per pound will be seen again on this short crop year.

Other survey items show that 10% of the honey is committed, while 49% of 1996 crop was locked in on last year's survey. This, I believe, is because of a change in packer strategy to make the lower 70 cent offerings in July and early August. That could be a scramble to lock some supply in with this short crop. Honey sold as of 8/16 is 65 drums at $.75, 30 drums at $.90, three drums at $1.00, 66 drums at $.85, 10 drums at $.90, 66 drums at $90, 64 drums at $.82, and 64 drums at $.87.

This crop represents the lowest surveyed since 1989. Along with a short Florida and California crop, it will move the market up to the price to operate our outfits, but it gives me no joy on this short crop report, as I am also in that boat.

We also voted on a resolution to look into a dumping suit on Argentina honey, as they sold honey into the U.S. at prices lower than necessary to move that honey, even lower than Chinese.

Please join the Mid U.S. organization if you are from the heartland. Dues are $50.00 and it is well spent. Send to Box 458, Parker, SD 57053. Our hotline is available to all producers 24 hours a day at 612-658-4193.

Darrel J. Rufer
President,
Mid U.S. Honey Marketing Assn.

Research Money Reply

The guest editorial in your August issue, "Another Perspective of the Honey Industry" by Jim Robertson, made many thought-provoking points. There is one point, however, which may be misleading to your readers.

Referring to the proposal to raise funds for beekeeping research by increasing the national Honey Board assessment, Jim implies that the new funds (at least 8% of the Honey Board's assessments, or about $500,000 per year) would be handed to the USDA's Agricultural Research Service (ARS) beekeeping laboratories to use as they please. Nothing could be further from the facts. First, the new funds will not be directed automatically to the ARS bee labs. The funds will be available for any legitimate researchers who show they can use the money to help solve some of our beekeepers' pressing problems.

Second, the Honey Board already has a good track record of soliciting proposals for research (in food technology research, for example) and issuing grants to the scientists showing the most promise. While nothing is firmly decided as yet, the discussions so far have been that the beekeeping research grants would be handled similarly. ARS scientists, university researchers, and others who qualify would be invited to bid for the funds. The priorities and projects would be determined by an industry committee.

I have learned that Jim is not the only person to have this impression, and I wanted to correct this. Furthermore, I can assure you that the ABF will not be a part to any plan to collect assessments from beekeepers unless it is demonstrated that those funds will be used for the betterment of our industry.

Troy Fore
Executive Director
American Beekeeping Federation

MAILBOX

Jim Robertson correctly praises the individuals involved in pushing through anti-dumping measures (August issue) but does not question why beekeepers had to endure several years of starvation wages before such measures were passed.

Jim does not question the considerable amount of beekeeper dollars spent on promoting the honey subsidy (with zero results) when all indications were that this was a blind alley due to the political climate in Washington, a climate that could be assessed by anyone who read the newspaper or watched the evening news. Besides the odds being stacked against subsidies, such relief, if passed, would have continued to consign beekeepers to the same status as welfare recipients, a status many beekeepers were uncomfortable with.

On the other hand, other commodity groups (garlic, pistachios and kiwi fruit, to name three) had proved that anti-dumping legislation was indeed the light at the end of the tunnel; they had blazed a trail that the bee industry was very slow to follow. Much valuable time (and money) was lost before the bee industry switched horses.

Joe Traynor
Bakersfield, CA

Ready For Winter

I just finished reading the August issue of *Bee Culture* magazine and there is a very good article on late season management of bees. The article was written by James Tew. It is the best article I have read. There was so much stuff in it that I really know for getting ready for the Winter months. This article alone is worth the price of the magazine.

Harold Rogers
Bellbrook, OH

Take Your Time

I think that Mr. Nults letter in the June issue was a letter from a truly concerned and interested beekeeper who is in need of information, and has requested help getting that information in a very proper and polite manner.

The beekeeping industry, whether looking at it from the standpoint of the commercial beekeeper or the hobby beekeeper has changed drastically over the last 15 years since the introduction of *Varroa* and I believe that every beekeeper has at one time or another felt the impact of these changes. The fact is we will all be feeling this impact for a long time to come.

When one takes the time to investigate and look at the history of beekeeping in the Americas one will see that our predecessors although not plagued with *Varroa* had problems of their own and at that time were not blessed with the technology that we have available to us today. These were the times when we had not yet come to the realization that everything we do has an impact on the environment, so we did what-

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ever we felt we needed to do regardless of the consequences. We now are suffering the consequences of the actions taken way back when.

I take exception with the parts of the letter from Mr. Martin in August issue which degrades and belittles the Editor. I do however want to point out that the readers should take Mr. Martin's advise and carefully read the Editor's remarks. I think most of the readers will find that the Editor is in actuality looking out for the beekeeper and the consumers of our products by recommending that we stay with what works. Most readers would not try to read something in between the lines so as to suit their fancy. What we have and what works has been tested and approved for use in beehives.

Although I'm not a chemist, I feel safe in saying that DDT would most likely kill *Varroa* but I wouldn't want to eat the honey from the hives it was used in, or have my wife, daughter or mother use the cosmetics that contain beeswax taken from these hives. The use of DDT in a hive is obviously absurd however, if you remember back to the days of this chemical it was considered to be the miracle poison. Now we find that it indeed was a miracle that caused death, destruction and deformation. The miracle part comes because we're still alive after it's use.

Thank God for the testing procedures we now have and for the government that takes the time to make sure things are safe to use. I would rather loose all my bees than take a chance on harming one of my customers.

I think Mr. Martin's time would be better spent contacting USDA and investigating just what is being done to combat *Varroa* as opposed to bad mouthing. There are studies being done within USDA I'm sure Mr. Martin could become involved in that would show him what is going on and how much work goes into them, for his benefit I might add . . .

There are those of us out here that do read, understand, appreciate and look forward to the Editor's remarks.

Keep up the good work and the Great Magazine.

Ed Mabesoone
Brooksville, FL

Wenner Replies

In the August 1997 issue of *Bee Culture* (Volume 125, Number 8, page 9), Debra Copple and Gregg Manston ("Bee Removers" from Claremont, CA) indicated that they were horrified about the honey bee removal project on Santa Cruz Island, as touched upon by Joe Traynor in the May issue of that publication. They vilified The Nature Conservancy in general (a take-off on only two sentences in the Traynor article) and castigated me in particular for these conservation and restoration efforts. The "crime" they addressed - our efforts to remove introduced honey bees from one of our national parks so that native bees could regain prominence and native plants could have adequate pollination. That is, we wished to enhance biodiversity.

Copple and Manston wrote, "One cannot undo the past, one can only go forward." That, of course, was the attitude of European settlers when they pushed the Indians out of their native lands and also brought in an incredible number of "weed" organisms that altered the landscape. By contrast my co-workers, The Nature Conservancy, the Channel Islands National Park, and others believe that the 100 or so species of native bees existing in a national park deserve a fair shake. Why must European honey bees have priority everywhere over all other bee species?

Also, in the words of Santayana, "Those who cannot remember the past are condemned to repeat it." I certainly hope not many others want to blindly move "forward" on this and similar issues.

If Copple and Manston had behaved more professionally and requested an update from me before "flying off the handle," as they did in their letter, I could have saved them some embarrassment. As it was, they apparently relied primarily on an article Robbin Thorp and I published *in Bee Culture* four years ago (Volume 121, Number 5, Pages 272-275). However, good science moves rapidly, and much has changed since that time.

Consider first how many people and agencies have been involved in the bee removal project. The former owner of Santa Cruz Island (Dr. Carey Stanton) sanctioned the honey bee removal project (the bees were his property at the time) and gave us permission to proceed back in the Fall of 1987. The Nature Conservancy honored his commitment when they assumed full control of the island. Under the circumstances, perhaps Copple and Manston might wish to retract their comment, "We cannot understand the mentality of those who operate The Nature Conservancy...". Personally, I think agencies and people who honor prior commitments to those who donate land for conservation deserve great credit.

Secondly, for the past 10 years we have submitted progress reports once or twice each year to The Nature Conservancy, the National Park Service, the Natural Reserve System of the University of California, and to other agencies and individuals. In addition, we have enlisted the help of USDA personnel, who recognized the fundamental merits of the project. A few years ago we received a grant from the National Science Foundation. That agency submitted our proposal to independent experts, who gave high marks to the essence of our project.

Also, I briefed members of the California Beekeeping Association about the project, and a year ago I presented the results of our research at the Western Apicultural Society meetings. Thus, a great many beekeepers and bee researchers learned of the merits of the native bee rescue effort. Never during this past decade did I encounter vituperation of the sort expressed by Copple and Manston in their letter. Are all these other people and agencies wrong?

Copple and Manston also claimed, "[A program to eliminate introduced species, including the honey bee] is ridiculous if not impossible." Evidence indicates otherwise. The Nature Conservancy has already eliminated the introduced sheep and cattle from their nine-tenths of the large and rugged Santa Cruz Island. The National Park Ser-

MAILBOX

vice has eliminated all burros from San Miguel Island and the feral (wild) pigs on Santa Rosa Island.

At the same time, with the demise of honey bees, the native bees in this national park are coming back strong. In early summer of 1989 (near the start of our program), honey bee foragers outnumbered the total of all native bee foragers by more than 30 to 1. By contrast, in July of 1997 native bees outnumbered honey bees by 2 to 1. It also appears, on the basis of 30 site inspections in that same month, that perhaps no more than 6 honey bee colonies remain on the island.

We encounter irony in this matter. Currently the Sierra Club and the Environmental Defense Center are suing the National Park Service to force them to immediately remove the European cattle and the introduced deer and elk from Santa Rosa Island (despite an agreement with the former owners that they could continue ranching for 15 more years). At the same time Copple and Manston violently object to the removal of European honey bees from Santa Cruz Island, only 6 miles to the east. Environmental extremism seems to take many forms, indeed.

Further irony exists. The National Park Service recently assumed full ownership of the eastern tenth of Santa Cruz Island and has begun to remove the European livestock. However, horse lovers in the local area object to the removal of the last dozen or so horses (the "heritage herd").

Now we find objection to the removal of "the heritage herd" of European honey bees (i.e., "...the only pure strain of this bee race in the world..." in their words), a belief apparently based on inadequate information obtained from our article of four years ago. Before that time, based on allozyme analysis, the bees appeared to be the German strain so highly touted by Copple and Manston. Subsequently, though, maternal DNA analysis and wing morphometric analysis placed the bees in two other categories. The conclusion we can draw? Sometimes "definitive tests" do not provide concrete answers. A mongrel category may well describe the island bees.

Having worked intimately with the Santa Cruz Island bees for ten years, I can assure anyone interested that no one would want to replace any bees they now have with these island honey bees. A local beekeeper with whom I work (Don Cole - one who has observed them in action) concurs with that assessment. Similarly, bee researchers at the UC Davis campus found them extremely mean. When briefed on the Copple and Manston insistence about preservation, they replied: "What for?"

We now feel sure, however, that the honey bees, island-wide, do form a clone. One mated queen would thus save the entire island "strain" (whatever that may be), and an established queen already exists in Minnesota. Another queen will be mailed soon. With artificial insemination, the strain could be kept going indefinitely. (When we made offers to send queens to researchers in USDA laboratories some years ago, we had no takers. Apparently not everyone believes these bees form a "heritage herd.")

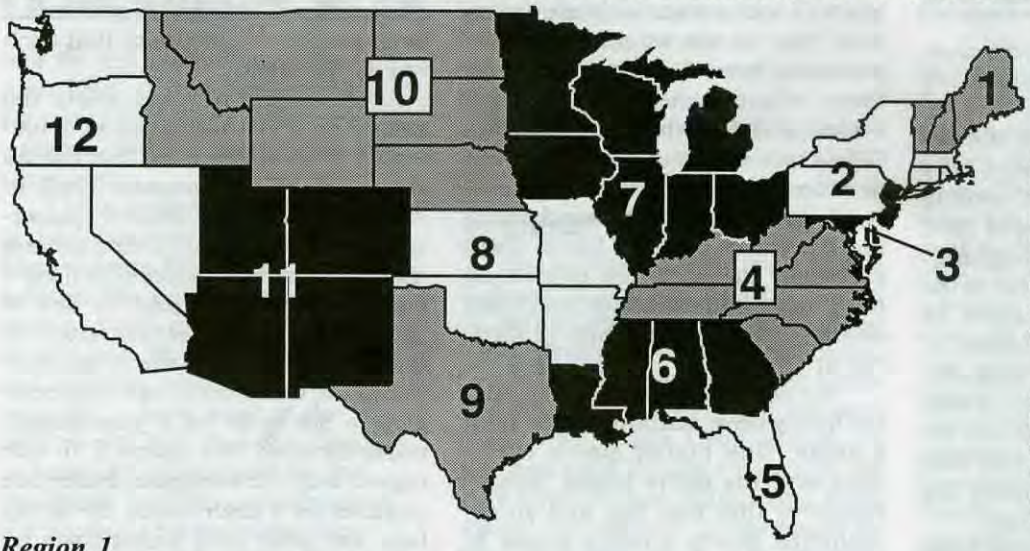
Third, Copple and Manston wrote: "To make matters worse, Dr. Wenner has introduced *Varroa* mites to the island....But in doing so, they are introducing another animal species (the mite) that is not native to the Island. The logic of this is beyond rational thought." My reply: the term "rational" does not necessarily mean "correct" (except, perhaps, for those who insist upon "political correctness" from their own perspective). We have many wars based on "rational" arguments, at least rational enough to convince a large portion of a populace that such war is necessary.

I provided a rationale about the suitability of *Varroa* mites as a biological control agent to The Nature Conservancy in November, 1993. In February 1994 The Nature Conservancy provided a list of nine criteria that must be met before one uses a biological control agent on one of their preserves. Varroa mites fit those nine criteria to the letter. Furthermore, those mites can only complete a life cycle on a year-round, warm-blooded bee species. In our region, only the European honey bee qualifies as a host. When the honey bees are gone from Santa Cruz Island, the mites will be gone as well.

For further information, readers of *Bee Culture* can read an abstract we published in the *American Bee Journal* in December, 1995 (Volume 35, Number 12, page 831) and our June, 1996 *Bee Culture* article, "*Varroa* mite spread in the United States" (Volume 124, Pages 341-343). The information contained in those sources provides adequate scientific justification for our actions. Fair-minded individuals who study the facts will readily recognize the weakness of this recent unjustified diatribe directed against The Nature Conservancy and our honey bee removal project.

Adrian Wenner
Santa Cruz, CA

OCTOBER – REGIONAL HONEY PRICE REPORT



Region 1

Prices stable, demand increasing to steady. Average production/colony down 15-20 lbs. this year, primarily due to weather. Some swarming and disease problems showing up.

Region 2

Prices stable to increasing just a bit at wholesale. Demand increasing, too. Production down this season, generally, on average of 25 lbs./colony. Some spots did well though. Weather biggest problem.

Region 3

Prices steady to decreasing for some commodities. Demand only steady, but promises to increase. Production up for most, but an average crop overall. Weather and more weather biggest problems.

Region 4

Prices steady to up just a little across the board. Demand, however increasing rapidly. Swarming and bad Spring and Summer weather have decreased the crop pretty much across the region.

Region 5

Prices decreasing pretty much across the board, which is unusual since production is way, way down. Demand steady to increasing, especially for specialty crops. Weather played havoc this season, for nearly everybody.

Region 6

Prices rising just a little, especially retail, while demand remains steady. Mixed crop, some reports 20-30 lbs. above average, some as much as 50 lbs. below. Weather the culprit, for better or worse.

Region 7

Prices up wholesale, down retail. Go figure. Demand steady to increasing all over the region. Crop pretty much reduced, anywhere from 10-40 lbs. below average, but some locations hot, with double sized crops. Weather the key, good and bad.

Region 8

Prices pretty steady across the region, but demand steady to increasing. Production strong here, with 20-50 lb. increases routinely reported. Weather not much of a factor, apparently, except for the good!

Region 9

Prices steady to rising sharply for some commodities, a healthy change. Demand, too increasing. Average to somewhat higher crop will help. Weather helped, and hurt.

Region 10

Prices down at wholesale, but rising retail. Demand slow, but steady, but with wholesale (bulk) prices not rich, not much being moved, yet. Production down, as much as 25%, with weather the key.

Region 11

Prices increasing in the region, with demand steady to increasing just a bit. Crop mixed, but more down than up for most. Weather, and mites key in slow down.

Region 12

Prices stable and demand to match. Crop all over the place, but the north seems to have done well above average, CA about 'average.' Weird weather the reasons for both.

	Reporting Regions												Summary		History	
	1	2	3	4	5	6	7	8	9	10	11	12			Last	Last
Extracted honey sold bulk to Packers or Processors													Range	Avg.	Month	Yr.
Wholesale Bulk																
60# Light	66.64	69.00	70.00	72.25	65.00	64.50	70.17	76.50	59.00	60.33	75.33	67.00	42.00-85.00	68.85	67.55	62.86
60# Amber	65.44	64.15	61.25	65.80	61.00	59.00	72.43	70.40	54.00	62.00	70.33	59.67	33.00-99.00	67.13	64.24	59.17
55 gal. Light	0.93	1.07	0.80	0.93	0.85	0.96	0.93	1.23	1.10	0.84	0.90	0.97	0.70-1.50	0.96	0.94	0.92
55 gal. Amber	0.91	0.93	1.06	0.92	0.85	0.85	0.92	1.29	1.10	1.06	0.83	0.91	0.55-1.70	0.93	0.91	0.89
Wholesale - Case Lots																
1/2# 24's	29.91	24.78	30.00	34.92	23.60	42.00	28.56	35.00	30.00	22.80	30.00	26.00	20.40-48.00	30.77	29.11	27.30
1# 24's	42.40	36.06	48.00	44.43	44.67	40.90	41.62	45.62	48.00	39.60	42.10	43.20	32.40-65.00	43.09	43.09	39.06
2# 12's	38.41	32.58	42.06	41.86	38.90	36.90	38.76	45.30	42.00	30.00	41.00	38.00	29.40-57.50	39.29	37.39	35.49
12 oz. Plas. 24's	36.13	31.98	37.78	36.54	43.00	34.20	36.46	37.36	42.00	30.00	40.50	34.27	26.40-50.00	36.94	35.44	35.90
5# 6's	40.61	36.91	45.99	47.17	39.38	37.70	40.14	49.33	45.00	36.00	42.50	37.00	31.50-65.00	41.46	**41.22**	**38.95**
Retail Honey Prices																
1/2#	1.88	1.53	2.83	2.17	1.20	1.77	1.73	1.83	2.95	2.83	2.58	1.76	1.09-3.69	1.91	1.76	1.67
12 oz. Plastic	2.18	1.99	1.99	2.37	2.55	2.44	1.97	2.22	2.95	1.80	2.90	2.19	1.40-3.15	2.23	2.22	2.21
1 lb. Glass	2.64	2.29	2.99	2.72	2.40	3.19	2.44	2.70	3.50	2.62	3.45	2.55	1.99-3.99	2.68	2.67	2.43
2 lb. Glass	4.41	3.87	4.60	4.98	3.93	4.93	4.30	4.43	4.75	4.38	5.25	4.83	3.29-6.00	4.50	4.42	3.97
3 lb. Glass	6.08	5.69	6.63	7.09	5.50	6.18	5.89	6.18	6.25	6.75	6.66	5.72	4.94-8.69	6.26	6.08	5.41
4 lb. Glass	8.01	6.50	9.10	9.80	7.50	8.50	8.32	7.89	7.50	9.10	9.10	9.95	6.30-12.69	8.31	7.74	6.90
5 lb. Glass	9.22	8.35	10.38	10.06	7.63	10.00	9.26	9.82	10.00	10.38	9.20	8.50	6.75-14.99	9.40	9.06	8.47
1# Cream	3.42	3.15	5.20	3.50	2.59	2.96	2.79	4.36	5.75	2.50	3.91	2.78	1.75-10.49	3.36	3.13	3.23
1# Comb	4.07	4.00	4.70	3.87	4.70	4.13	3.79	3.34	4.75	4.70	6.50	4.16	1.95-8.00	4.15	4.19	4.17
Round Plastic	3.79	3.14	4.62	3.66	4.62	4.00	3.07	3.72	5.00	4.62	6.08	4.09	2.50-7.50	3.85	3.86	3.86
Wax (Light)	2.71	2.93	1.75	2.00	2.00	2.38	2.53	3.16	4.00	1.70	2.77	3.25	1.65-5.50	2.74	3.04	2.72
Wax (Dark)	2.37	2.78	1.75	1.83	1.57	1.95	2.15	1.90	3.75	1.50	2.50	3.25	1.20-5.50	2.39	2.62	2.36
Poll. Fee/Col.	34.63	39.00	28.75	37.17	25.00	33.67	36.63	37.00	15.00	36.81	50.00	35.33	15.00-60.00	35.43	34.03	33.77

NEW FOR YOU

Honey Bees and Beekeeping, 2nd Edition. Keith Delaplane. Published by University of Georgia. Available from A.I. Root Co., 623 W. Liberty St., Medina, OH 44256. ISBN 0961903112 Soft Cover. 136 pgs. Spiral bound. $15.49 includes postage.

Keith has updated his popular book on beginning beekeeping, dispensing with outdated mite controls and bringing in new material. It still goes hand in hand with his video and the two work well together. The information will suffice for a first or second year beekeeper, but after that more is needed. Interestingly, this book features a chapter on queen production, definitely not a beginner's subject.

Delaplane's style is easy to read and the photos and art, while not as abundant as I like, are adequate. Worth the price.

Kim Flottum

Varroa! Fight The Mite. To order and for more information on this book contact IBRA, 18 N. Road, Cardiff CF1 3DY, UK.

Face the facts – *Varroa* is here and it won't go away. If beekeepers are to get the upper hand on this parasite they need to fight the mite.

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Chapters from leading scientists Dr. Stephen Martin and Brenda Ball give an up-to-the minute and very clear view of current research and thinking. While expert beekeepers from Sweden and Switzerland give a continental view of research thinking along with really practical insights into the alternative treatments they are using.

Today bees need beekeepers to ensure their existence. Beekeepers need this book if they are going to do the best they can for their bees.

In order to keep costs low and to ensure that beekeepers get the information they want at the lowest possible price – this book is available only through IBRA.

Honey Shows. Guidelines for Exhibitors, Superintendents, and Judges. Roger and Mary Lou Morse. Published by Wicwas Press, P.O. Box 817, Cheshire, CT 06410. $9.95 postage included. ISBN 1878075071. Soft cover. 36 pgs. Saddle stitched.

The book deals with the general guidelines and considerations of a honey show; the aspects of preparing liquid honey, crystallized honey, comb honey, cut comb honey, chunk and bulk frames for show. Also, preparation of beeswax, observation hives, novelties, gadgets, mead (honey wine), and baked goods and candy. Additional sections include discussion of grading methods for honey and beeswax as well as an addendum and show anecdotes.

This book incorporates decades of experience to help beekeepers prepare honey, beeswax and other products in a professional manner. These methods may be used for competitive shows as well as for general sales market. Special sections discuss the equipment used by judges in their work.

This book is about an art that is all but lost in this country. Maybe it should be, maybe it shouldn't, but if you are an old-school honey show afficianado this is for you. It has all the details necessary to get you through the British National. If you'd want to.

Since it's an only-one-of-its kind the price is right. And the content, Roger Morse style-written, is easy to read, but less than exciting. It works.

Kim Flottum

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12 Lessons on Life I Learned From My Garden. Vivian Glyck. Published by Rodale Press, 33 E. Minor St., Emmans, PA 18098. 120 pgs. Hard cover. 6" x 9" format. ISBN 0875964265. $14.95 at bookstores.

Gardening, like beekeeping is full of lessons that can be applied elsewhere in life. This little book looks at some of those fundamental lessons. For instance, "preparation Is Everything." And "Balance Is Key." Metaphors for life. Cultivate what's important.

Simple, short, but worthwhile.

Kim Flottum

Print: Apiary In Late Winter Snow.

Black & white pointillism print features a Michigan apiary in a late Winter snowstorm, by Larry Connor. 10½" x 15½" image on 11 x 17½" textured art stock. 110 signed prints made from the original. Ideal for beekeepers, and collectors. $35.00 postpaid. Wicwas Press, P.O. Box 817, Cheshire, CT 06410.

American Stone Ginger Beer & Root Beer, 1790 to 1920. Donald & Elizabeth Yates, Editors. 360 pgs. Self published. $27.00 including postage in the U.S. 18650 Evergreen Drive, Strongsville, OH 44136.

This esoteric book, published because the editors have a passion for the subject, is a comprehensive history of the industry that produced root beer and ginger beer. "100 years ago 80% of the U.S. population was familiar with ginger beer; today 98% of the U.S. population has never seen a stoneware ginger beer bottle," sums up the need for this book.

Breweries and stone bottle manufacturers are detailed, chronologically and by state, (and provinces in Canada), sometimes even by city, so thorough is the documentation. Hundreds of drawings, and photocopy reproductions of bottles, labels, people and buildings highlight the text. There are some recipes, using honey, for these products, which is the draw, but the unique information contained is the meat.

Kim Flottum

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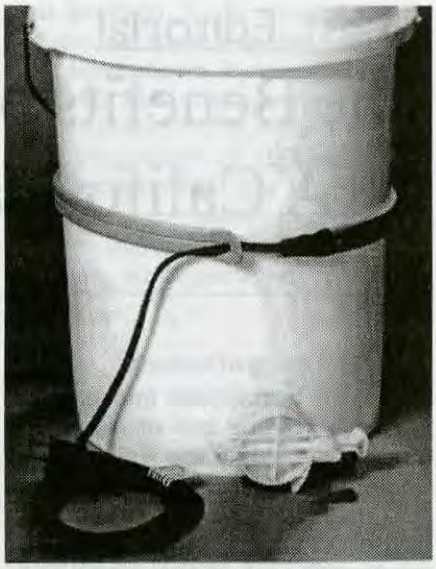

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Guest Editorial

The Benefits of Research Funding – A California Perspective

Joe Traynor

Some beekeepers question the need for funding bee research. Because they don't see any obvious benefits, they feel research is not that important. Any type of research is fraught with frustration – for every fruitful product of research there are at least 10 projects that end with no discernible benefit. As one sage (Marston Bates) put it "Research is the process of going up alleys to see if they are blind." Too many beekeepers focus on the blind alleys and not on the sporadic successes and feel they're not getting the bang for their bucks. Researchers, feeling the pressure to produce results, tend toward safe projects rather than take a flyer on a project that shows no immediate promise of results but, if pursued in depth, could provide spectacular benefits.

In recent years, the almond industry has funded more bee research than the bee industry (a fact that should embarrass beekeepers). If, as a few beekeepers think, beekeeper funding of research is a poor investment, then almond growers must be assessed as not being very smart. Such an assessment flies in the face of my observations as all the almond growers I've encountered appear to be just as smart (and just as independent) as beekeepers.

Bee research has greatly benefited California beekeepers over the years, although in ways that are not readily apparent. Allow me to point out some of these benefits.

I got started in the honey bee pollination business in 1959, working for a commercial pollination company managed by Charles Reed and based in the San Joaquin Valley. In 1960, a large melon grower in Western Fresno county had heard that bees might be beneficial to melons but needed more proof before he spent big bucks on bee rental. Reed had close ties with Frank Todd and Sam McGregor of the USDA Bee Lab in Tucson and they provided the necessary proof (based on their research): that the size of a melon is dependent on the number of seeds it contains and the number of seeds is based on the number of pollen grains transferred (a prime cantaloupe requires the transfer of about 400 pollen grains which in turn requires about 10 bee visits per flower). This research data convinced the grower and he rented 3,000 bee colonies for his 3,000 acres of melons at alfalfa seed pollination prices ($6.00/colony at that time) and he came up with the best yields he ever had. The idea of renting bees for melons is now an accepted practice in California and in the years since 1960, melon pollination fees have put millions of dollars in beekeeper pockets.

Like Jim Robertson (August issue) I also encounter considerable price cutting on melon pollination. A few years back I told our largest melon account that part of the reason for our high prices was that the stronger hives we supplied lost weight (consumed honey) during melon bloom; you're trying to get the crown set on melons and there are simply not enough flowers to support the bees. This potential honey loss provides an impetus for beekeepers to select colonies with the lowest populations (often divides) for melon pollination and to put their better colonies on honey locations.

To prove my point with the melon account mentioned above, I rigged up two scale hives and had the grower record the weights daily. As with most melon bees, the hives came out of the oranges quite heavy and at the end of the melon pollination period (before there were copious melon flowers) the scale colonies had lost roughly 20 lbs. or $10 worth of honey each. The following year (at the suggestion of a beekeeper who is a bit smarter than I am) we weighed two bee trucks (120 colonies per truck) as they went into the melon fields and again as they came out. One truck lost 20 lbs. per colony and the other 30 lbs. (per colony) and the grower was satisfied our prices were justified. Funding a similar study by a respected institution (beekeeper data lack credibility) could help beekeepers maintain higher melon pollination fees (for growers with on-ranch scales I can see a fee based on weight-in and weight out). Such a study, if funded, should be done well before cotton bloom and the melon field(s) should be isolated from any significant nectar sources (a normal state of affairs for most melon pollination). To make it more interesting, the weight change of a load of eight-frame strength bees (or divides) could be compared to a load of 16-frame strength bees.

There is much less research data on the benefits of strong colonies for melons than there is for almond and alfalfa seed. Perhaps a study could be initiated to show that melon growers could get by with less colonies per acre (and lower per-acre pollination costs) if strong colonies were used.

More recent melon research by Frank Eischen, et al has shown that bee deliveries to melons can be delayed long enough for growers to get one or more pre-bee sprays (if needed) with no loss in melon production.

Alfalfa Seed

The history of alfalfa seed pollination in California is also research based. Alfalfa seed production in California started in the late 1940s, at which time there were many questions as to whether honey bees could do the necessary tripping of alfalfa

flowers to effect pollination. Honey bees were ineffective pollinators of alfalfa in the main seed producing areas at the time (the Midwest and Pacific Northwest) because they just didn't or wouldn't trip the flowers. Todd and McGregor showed that in the drier climates of the desert areas of the southern San Joaquin and Imperial Valleys, honey bees were effective pollinators of alfalfa (due in large part to accidental tripping by nectar collecting bees because flowers tripped more easily at lower relative humidity). As the humidity has risen in the San Joaquin Valley (due to widespread irrigation that has changed what was once a desert into an agricultural oasis) alfalfa flowers don't trip as easily as they did 50 years ago, but honey bees still do the bulk of alfalfa pollination in California and probably always will.

Pollination fees for alfalfa seed have put millions of dollars in the pockets of California beekeepers over the years and it is research that laid the foundation for this bounty. One of McGregor's students, Mike Rosso, now operates an alfalfa seed pollination service and commands a premium price for the beekeepers that work through him. Growers are willing to pay this premium price because Rosso has shown them the research data that justify it. Similarly, many beekeepers are able to command a premium pollination price for almonds (and for other crops) because of research that has shown that higher priced hives are usually worth the extra money.

Cotton

Although bees have not been proven to be essential for cotton in California, the scattered research reports that have shown benefits from bees (you don't get any more bolls, but more seeds per boll, thus bigger bolls) have helped me to get cotton locations for beekeepers (and have made at least a few cotton growers more careful about their pesticide programs). A past study in California failed to prove the benefit of bees to cotton because it was impossible to get a check (no-bee) field but it is felt that cotton fields in alfalfa seed areas get better yields because of their proximity to large populations of honey bees.

Pesticides

Research on the toxicity of pesticides to honey bees is another area that has helped all California beekeepers. Bee-pesticide research, particularly that by Larry Atkins, has led to judicious use of certain pesticides around bees and has saved billions of honey bees over the years, particularly in the San Joaquin Valley. When a beekeeper says he's getting "clobbered" by a certain pesticide, his words don't carry a lot of weight, but if research data can be shown that a particular pesticide is indeed a serious hazard to bees, people take notice and restrictions are put in place. It's a "show me the data" world and Atkins and others provided the necessary data, in good part through the use of dead-bee traps placed in hive entrances.

An interesting pesticide problem around 15 years ago was also solved by research: beekeepers claimed they were getting clobbered by the pesticide Monitor, yet Atkins' dead-bee traps indicated that Monitor was a relatively safe material to use around bees. The losses claimed by beekeepers were due to queen and brood loss and didn't show up until well after the Monitor was applied – Monitor was a stealth killer that had slipped in under the radar. Beekeeper claims were ignored until Eric Mussen, in a neatly designed experiment, provided the necessary data to show that Monitor did indeed cause severe bee losses. The use of Monitor around bees is now greatly restricted and such restrictions, based on research data, have saved millions of bees.

Pesticides and oranges

Bee-pesticide research has also helped California beekeepers make more orange honey. As a former San Joaquin Valley beekeeper, I made virtually all my honey during the two to three week period of orange bloom. One of the reasons I got out of the bee business is that just as my hives were going gang busters on orange bloom, the grower would "have to" spray with a highly toxic material. The year after I sold my hives a spray moratorium was put in place in the citrus areas of the San Joaquin Valley – growers can't spray with highly toxic materials from 10% bloom till petal fall. If a grower does have a pest problem, he is allowed to use certain materials (e.g., lannate) that have been shown, by research, to be relatively safe to use around bees if applied before 7:00 a.m. or after 7:00 p.m. The result of this research-based moratorium has put millions of dollars in beekeeper pockets through increased orange honey production and reduced pesticide losses.

Summing up

The vast majority of beekeepers support funding of research (although they may disagree on the method of funding) just as the recent referendum showed that the vast majority of beekeepers support the Honey Board (in spite of the somewhat paranoiac implication by a few beekeepers that this vote was in some way not representative). The vocal few who rail against spending money on research make a noise far out of proportion to their numbers. The enthusiasm with which these few present their case has a certain appeal but when their case is examined closely, little of substance can be found.

In recent years, California farmers, beleaguered by their small representation in state and federal legislatures, have erected billboards stating "When you complain about agriculture, don't talk with your mouth full." A similar phrasing could apply to beekeepers, especially California beekeepers, that complain about funding research. BC

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Roger Morse

Research Review

"There is no substitute for a good, queenright, brood-rearing colony of honey bees to pollinate any crop."

There are few pollination shortcuts! However, that has not stopped people from making a wide range of suggestions for improving pollination by attracting bees to a crop using a variety of techniques. These have included such methods as spraying crops with sugar syrup, feeding bees, and using various scents. Most of these efforts have been failures.

The simple fact is that there is no substitute for a good, queenright, brood-rearing colony of honey bees to pollinate any agricultural crop. Equally important is the fact that one does not fool a honey bee. If a foraging worker does not receive a proper reward for her work she soon loses interest.

An important reason for using honey bees as pollinators in commercial agriculture is that their numbers can be measured, their diseases and other weaknesses are understood, and in emergency situations more colonies can be brought onto the scene overnight.

The article I cite below reviews what has been done regarding using sugar syrup to stimulate pollinating honey bees. In New Zealand, the author's home, 70,000 colonies are rented annually for the pollination of kiwi fruit. Kiwi fruit pollination has been researched extensively as it is difficult because the fruit produces pollen but no nectar.

Over the past several decades people have used sugar syrups to stimulate foraging in several ways: They have sprayed the crop to be pollinated with syrup; they have fed colonies syrups with scents from the crop in need of pollination, and they have fed colonies plain sugar syrup so as to switch bees away from nectar production and into pollen collection. Only the last idea appears to have any merit, but the author writes, "Even though there are no data on the effect of sugar feeding on kiwi pollination"— 80 percent of the colonies used "are fed sugar syrup while they are in orchards."

What happens when a crop to be pollinated is sprayed with a rich sugar syrup? About 40 years ago, two researchers wrote that it helped to attract bees to flowers, but the idea never gained momentum suggesting it was a humbug. More research followed, and another researcher reported that fewer bees visited the blossoms, but many spent time licking the syrup from the leaves. The sugar syrups tested contained between 30 and 50 percent sugar.

Starting in the 1930s, it was advocated that you could use the bees' own language to stimulate foraging on a crop using a scented sugar syrup. Again, the idea flopped, but not before at least 27 researchers made tests. While you may temporarily stimulate foraging, the bees must receive a proper reward for visiting a crop or they soon lose interest. In other words, if the crop does not produce a rewarding crop of nectar or pollen, or both, the foraging bees look elsewhere for food.

However, "feeding sugar syrup to colonies can cause them to rear more brood, which in turn affects the amount of pollen a colony collects" since bees must have pollen (protein) to feed brood. However, it was also found that when the sugar feeding stopped, most of the bees reverted to nectar collection.

Research by several people has shown that feeding sugar syrup also ties up the house bees that process incoming nectar. When foraging bees cannot find house bees to take their loads they turn their attention to pollen collection. There are no data on the economics of feeding sugar syrup to stimulate pollen collection.

Those who have worked with kiwi fruit pollination have found that the time of day the syrup is fed is important. Feeding at 9 a.m. and 11 a.m. was much more effective than feeding at 5 p.m. However, it is pointed out that kiwi flowers release their pollen before noon and the method might have different results if the pollen was released in the afternoon or all day.

Two notes in *APIS*, the extension publication from the University of Florida, review attempts to improve pollination through the use of attractants and pheromones. There have been a number of these manufactured and promoted including Beeline, Beelure, Bee-scent, Pollenaid, Pollinus, and others. An article reported in *APIS* from France states, "that so far it isn't easy to manipulate foraging behavior within the highly developed social structure of *Apis mellifera.*" *APIS* reports that tests using pheromones to improve pollination are underway in France and the results are anxiously awaited. BC

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Goodman, R.M. *Feeding sugar syrup to honey bee colonies to improve pollination: a review.* Bee World 78: 56-62. 1997.

Sanford, T. M. *Duping honey bees, the case of attractants and royal pheromone: bee boost trials in France.* APIS, University of Florida. pages 1-4. June, 1997.

?DO YOU KNOW?

Effective Colony Management

Clarence Collison
Mississippi State University

Effective colony management requires an understanding of basic bee biology and behavior. As colonies are inspected for Winter, it is important to know what conditions are required for survival, and understand the factors that affect the bees in preparation for the upcoming Winter. It is also important to be able to recognize several subtle cues that will indicate current colony conditions. Foraging behavior and the hoarding instinct directly impacts the quantity and quality of the Winter stores. The structure of the combs and brood nest are also important for cluster formation and population replacement in the Spring. Handling the Fall honey crop correctly is also another important consideration for the beekeeper.

Take a few minutes and answer the following questions to find out how well you understand these topics.

The first 13 questions are true or false. Place a T in front of the statement if entirely true and F if any part of the statement is incorrect. (Each question is worth 1 point).

1. ___ The primary use for slatted racks is to increase winter survival.
2. ___ Worker larvae are fed royal jelly during the first four days after egg hatch.
3. ___ As a colony goes into the Winter, you would expect to find the cluster of bees in the upper-most hive body.
4. ___ In order to determine the amount of honey stores for Winter in a colony, a beekeeper would use the following estimates; a full depth comb holds approximately six pounds of honey, a medium depth comb four pounds and a shallow comb three pounds.
5. ___ When honey crystallizes, there is an increase in moisture content of the liquid phase as crystals form.
6. ___ Worker honey bees seldom ever fly eight meters above the ground.
7. ___ Nosema disease is caused by a virus.
8. ___ Queen excluders and frames with undrawn foundation should be removed from the hive in preparation for Wintering.
9. ___ Fumidil-B is fed to colonies in the Fall to control nosema and sacbrood disease.
10. ___ When removing surplus honey from a hive, the beekeeper should be sure that the combs are at least 50% capped.
11. ___ The preferred way to treat colonies with Fumidil-B is to feed it as a dust mixed with powdered sugar.
12. ___ Honey bees use the sun as a compass and can compensate for its movements.
13. ___ Bees begin to form the Winter cluster when the temperature drops below freezing.

Multiple Choice Questions (1 point each)

14. ___ Mushroom bodies in the worker honey bee are associated with the:
    A. Intestine
    B. Compound eye
    C. Brain
    D. Wax glands
    E. Heart (aorta)
15. ___ Worker honey bees can see all of the following colors except:
    A. Ultraviolet
    B. Yellow
    C. Blue-Green
    D. Blue
    E. Red
16. Please explain why straining or filtering of honey will delay honey crystallization or granulation. (1 point).
17. Give two explanations for tiny pinhole perforations in capped worker brood. (2 points).
18. In addition to beeswax, what other two materials are involved in comb construction ? (2 points)

Worker honey bees have specialized "tools" that are involved in comb construction. Please match the following body parts with the correct function related to comb construction. (5 points)

A. Hair plates at the base of the neck
B. Sense organs at the tip of the antennae
C. Tips of the workers forelegs
D. Mandibles
E. Enlarged first tarsal joint of the hind leg

19. ___ Measures cell diameter
20. ___ Removes wax flakes from the underside of the abdomen
21. ___ Determines thickness and smoothness of the cell walls
22. ___ Kneads wax to the proper consistency and degree of plasticity
23. ___ Serves as a plum bob to determine the line of gravity (straight cells sides).

ANSWERS ON PAGE 54

Mark Winston

Media

"Our industry's message about the importance of bees for pollination seems to have gotten through to the public."

Part of the territory involved with being an "expert" is fielding phone calls from people who are not experts. The bee calls in the Vancouver area often get switched my way, mostly because I work at a university and people assume that professors have the answers to their questions. The vast majority of the calls I get end up having nothing to do with bees, but rather come from homeowners who have wasps, which they think are bees, nesting in or near their homes. The caller usually wants to know if I would like to come over and remove the nest so that I can study it. I give them all the same answer: You have wasps, not bees; wasps are beneficial insects because they eat insect pests, and are better tolerated than exterminated; and no, thank you anyway, but I don't want to come over and remove the nest.

This last Spring, however, I received an odd call that has stuck in my mind. This caller was in the habit of staying up late to listen to an all-night radio talk show broadcasting from somewhere on the high plains of Nevada. His call was prompted by the host having proclaimed the night before that 95 percent of the bees in the United States were dead. As a result, there would be a massive crop failure the likes of which hadn't been seen in the United States since the Dust Bowl days. This crop loss was not going to be caused by dust, of course, but by failed pollination.

His concerned phone call was not the first time that I had heard about bee losses through the media, but it certainly was the most extreme. For some reason, the Spring of 1997 elicited a flurry of media reports about bees and mites, and there was a period around April or May when I and my students were doing two or three radio, television, or print interviews a day. The journalists calling us almost invariably had the story exaggerated or mixed up in some way, usually by citing improbable statistics about colony losses, mixing up honey bees with other bee species, or confusing managed honey bee colonies with feral ones. Even I began to wonder, and I eagerly scanned the bee journals to see if I had missed something. Perhaps bees and beekeeping no longer existed in North America, and somehow that fact had passed me by.

This media barrage seems to have had an impact, since everywhere I went last Spring I was asked about the bee losses. My barber jumped on the topic as soon as I sat down for my regular haircut, friends in Vancouver called me up regularly to ask about what was happening with the bees, and my neighbors adopted a solemn, funeral-like, "sorry to hear about your loss" tone when we talked over the fence. The good news is that our industry's message about the importance of bees for pollination seems to have gotten through to the public. The bad news is that the media's handling of the mite "crisis" has provided a highly distorted picture of what is happening in our industry, and the short attention span of the public soon will move onto the next flavor-of-the-month crisis.

Perhaps we have made some progress, however; it's refreshing to read about mites killing bees rather than about bees killing people. The focus of reporting about bees over the last 20 years has been on killer bees and stinging, which certainly did our industry more harm than the current "good-guy" reports that portray us as the purveyors of pollination and protectors of agriculture. Headlines like: "Danger From the African Queens," "Those Fiery Brazilian Bees," or "Savaged and Stung: The Killer Bees" were not the kind of press we wanted or needed, and wildly overplayed killer bee movies could not have done our industry much good. There have been only about five fatalities in the United States since the arrival of Africanized bees in 1990 that could be attributed to "attacks" by large numbers of bees, but media reports have treated these bees as invaders of the magnitude of Genghis Khan.

The media have not limited their focus to bees alone; those of us who have been around for awhile can remember the infant botulism story that had some media prominence a few years ago. There was a flurry of reports about honey containing botulism spores, originating from a single case in which an infant had died from botulism poisoning. Honey was one of a number of foods the infant had consumed that contained botulism spores, but the media focused on honey as the culprit. A campaign arose out of this report to force packers to label honey as potentially unsuitable for infants, which would have put quite a dent

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"The credibility and accuracy of media reports on bees and our industry are especially important issues because the media have enormous influence on public opinion and government decisions."

MEDIA ... Cont. From Pg. 23

in the healthful image of honey that is the centerpiece of our marketing efforts. Fortunately, reality eventually set in and the issue died down, but not before the media took our industry for a long ride down the road of distorted information.

I think the distortions we see in media reports about bee-related issues such as mite damage to beekeeping, Africanized bees, and infant botulism in honey are based on a phenomenon similar to the children's game "telephone." In this party game, a group of kids sit in a circle and one whispers a sentence into the ear of his or her neighbor. The sentence is whispered sequentially around the circle from kid to kid until the message reaches the originator, who then repeats the final version of the message out loud, usually in a distorted and hilariously funny version of the original sentence.

I see the same distortions coming out of media reports, which often feed off one original source but get modified as they are faxed, e-mailed, and wire-serviced all around the globe. Take the reports of beekeeping's demise due to parasitic mites. The origin of this extreme gloom and doom probably came from recent reports that 80 percent of the *feral* honey bee colonies in California *may* have died due to mite infestations, or the 1996 report that *up* to 50-80 percent of managed honey bee colonies in some parts of the United States died over the 1995-1996 Winter. These and other reports indicate a problem, and beekeepers are taking parasitism by mites seriously, but that is a long way from the reported death of 95 percent of all bees in the United States, whether managed or feral, honey bee or not.

Similarly, media reports exaggerated the Africanized bee problem and infant botulism well beyond reality. Occasional serious stinging incidents in Latin America were magnified into a civilization-threatening attack on life as we know it, blowing a manageable situation far out of proportion to the real situation. For infant botulism, it is true that uncooked food may contain botulism spores. Children under the ages of 6-12 months have not yet developed the enzymes that destroy botulism spores in their guts, and as a precaution should not be fed any uncooked foods. However, full-blown cases of botulism are rare, and when they do occur, their link to honey has been tenuous at best.

The credibility and accuracy of media reports on bees and our industry are especially important issues because the media have enormous influence on public opinion and government decisions, and as such influence the amount and direction of research allocations, implementation of trade barriers, labeling and packing regulations, and the licensing of chemicals used in beekeeping. For example, media-driven public fears about Africanized bees stimulated the allocation of $8 million in the 1980s to establish a "bee barrier zone" in Mexico, in a program administered by the U.S. and Mexican departments of agriculture to stop the Africanized bee. Most scientific and industry representatives were critical of this program, or at best lukewarm in their support, and as expected, the barrier zone did nothing to impede the spread of Africanized bees. I doubt whether a program like this would have been initiated without media pressure, which forced governments into a position where they had to at least appear to be doing something, which in the end was ill-advised and unnecessary. If you have any doubt about the substantive impact of media on our industry, consider how far $8 million could have gone in dealing with mite parasites if the Africanized bee had not overwhelmed the public agenda about bees.

Exaggerated media reports are not always harmful to our industry. For example, the recent reports on mites have been an important impetus to the Environmental Protection Agency to speed up the licensing of formic acid for use as a miticide in beehives. Another example of how media can assist beekeeping took place a few years ago, when microencapsulated pesticides were becoming common. Heavy bee losses were reported widely in the public press, which played an important role in raising consciousness about this issue and put pressure on growers and pesticide companies to limit their use of these formulations to situations in which bees were not at risk.

Television, radio, and print media can work both ways. On some issues the media have proven to be a powerful and beneficial influence in promoting industry programs, while in other areas press reports have done considerable damage. If we want to promote our industry through the press, or at least minimize the damage that press reports can cause, we need to deal with the media in a more sophisticated and organized way. Our professional organizations could not only develop positions on issues, but go beyond that to be aggressive at pushing our agenda forward with the media. Beekeeping groups would be well-served to establish public relations posts within their groups, and to sponsor programs for beekeepers that can provide skills in media handling. A short role-playing session during your next club meeting can go a long way toward improving your skills in dealing with the press. We now have the sympathetic ear of the public because of tracheal and *Varroa* mites; let's build on that to generate more press that helps rather than hinders the beekeeping industry. BC

Mark Winston is a professor and researcher at Simon Fraser University, Burnaby, B.C. Canada.

FINANCIAL PLANS $$$WORK$$$

David Lindo

Heather Jones produced a high-quality product. It was competitively priced. Her customers loved it. Business was great! Jones recently filed for bankruptcy.

How did that happen? Business got too good. Jones' sales tripled in her last year. It was the second year in a row that her growth rate exploded. Orders continued to pour in all the way up to final dissolution. What went wrong? Why did Jones have to call it quits? Because Jones lost financial control of her business. She ran out of cash.

Jones didn't plan her growth. She outgrew her ability to keep control of cash flow. The payoff from years of market development, product improvement, and enhancements in packaging was a cash crunch. By the time she discovered that more financing was needed, it was already too late to get it. The sad part of her story is that by achieving success she accomplished failure. Jones didn't have a business plan for success. She couldn't say "No" to customers because she had not defined her business expectations and her ability to deliver on her promises. When rapid growth came, it came as an unexpected crisis. It didn't have to turn out that way.

Long before most financial problems become fatal, business owners who know where to look for trouble can spot the handwriting on the wall. But if you're not planning your future, and monitoring your results, the *coup de grace* can occur when you least expect it. What financial indicators are you using to evaluate your business?

Is profit your only key indicator? Or do you pay attention to expenses, needed capital additions and their affect on the balance sheet, and cash flow? Who's really responsible for your rate of profit? Should the economy, the competition, your customers or employees, get all the blame if things go wrong? If you are earning as much profit as you expected, is all of it getting deposited in the bank? Or does some of your profit get lost as expenses and employee theft, or spent on investments in assets? Do you have an integrated financial plan that measures the impact of each of these factors?

Mr. or Ms. Business Owner, have you failed to take the simple precaution all the big guys take? Do you have a financial plan for your business? If you don't have a financial plan, you may already be losing control over business costs, investment requirements, and cash flow. No plan means that you have already taken the first step toward losing your business.

To really keep on top of your business, you need to prepare a financial plan that contains at least four elements. Your plan should be made up once a year, and updated whenever a significant variance is noted between what you planned and what actually happened. The four cornerstones of an integrated financial plan are labeled:

Profit Plan
Expense Plan
Investment Plan
Cash Flow Plan

If Jones had developed and maintained even one of these plans, she would be in business today. She would have been able to identify financial problems in time to obtain adequate funding to resolve them. She would have discovered that her business needed more cash to survive the stress of rapid growth.

Many business owners claim success when they end the year with more cash in their pocket than they had at the beginning of the year. Unfortunately, cash in the pocket is no assurance that the year was a financial success. Reduction in on-hand inventory, increased depreciation expenses, early collection of accounts receivable, slowing payments to vendors or taxing authorities, all increase cash-on-hand. Successful business owners don't merely trust the cash on hand indicator. They prefer to add the more comprehensive aspects of a profit plan.

Profit Plan

A profit plan is prepared to identify the time-phased difference between expected income (sales or revenue) and anticipated costs incurred to obtain and service the income. Costs include expenses incurred to: produce (or buy) product or service, sell it, deliver it, manage the business, interest, and taxes. The result when these costs are subtracted from income is profit after tax. Note that this profit value may or may not be received in the form of cash, even if you file your taxes on a cash basis.

Scott Anderson, owner of a small manufacturing company, now has a profit plan for his business. He didn't always have one. Anderson states, "now that I know what I'm doing, I'd prefer to sell only Product B, but there isn't enough demand for it to keep me in business. So I also sell Product A. It may not make as much money, but it helps keep the lights on."

Of the two products Anderson produces, one is a relatively low-

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"Cash is the lifeblood of any business. When you run out of cash, you are technically insolvent. The next step is bankruptcy."

FINANCIAL PLAN ... Cont. From Pg. 25

profit-margin item (Product A). The other is a high-margin contributor (Product B). Profit margin is the difference between sales price and the cost to produce (or buy) the item. Why does Anderson have a profit plan today? He states, "I learned the hard way that it was necessary to have a planned profit for my business. A few years ago, my sales really started to pick up. In those days I didn't plan, and kept only minimal records. I paid my salesmen bonus based on dollars of sales. I didn't think about the different profit margins for A and B. All I knew was that total sales were up, and we were real busy. Then sometime during the year I noticed that it seemed like I had less cash than I had at the beginning of the year. I wondered if this meant my profits were going down."

Anderson investigated. He discovered that Product A production costs were 70 percent of sales price, while Product B costs were only 35 percent. Looking further, he discovered that the bonus payment rate for the salesmen was set based on a 50-50 mix of sales between the two products. Thus, the sales force was being equally rewarded for selling high- and low-margin product. The result was that when sales of A went up, he was actually paying more bonus to the sales force than he was earning in net profit on the sale. In effect, each sale of A could potentially result in a loss.

After identifying this incentive problem, he established a profit plan that included a planned sales mix by product, and established target gross margins for each product. He modified the bonus payment arrangement to insure that each sale would be profitable. Anderson states, "Setting up a profit line for each product was a simple enough thing to do. The result is that I am better able to monitor profit performance by product line – and profit contribution by salesman. This combination has also helped me keep more focused on expenses."

How about you? How effectively do you identify each dollar you expect to spend? At the start of each year, you can take time to prepare a list of all expenses you expect to incur. Once you have completed the list, you can estimate a value for each based on planned sales or production levels. This is your operating expense budget. Take a few more minutes to spread out the expenses by the month of the year in which you expect them to occur. Note that some seasonal expenses can create some real cash problems. By identifying these seasonal peaks before the year starts, you can better control expenses and monitor cash needs.

Expense Plan

Jesse Canbia owns a marina. It earns income from three sources: ship rental, gas sales, and a snack bar. Canbia thought he was making money on each, but his monthly cash flow wasn't always positive. After a month where he had to put $2,500 into the business to pay bills, he became concerned. He initiated a monthly monitoring process on expenses by business segment.

The problem turned out to be in the snack bar. Expenses were inconsistent, but cash flow was almost a constant. He reports, "Whenever I was around, there always seemed to be a lot of people in the snack bar. The sales were pretty much the same each month. But it wasn't consistently generating the same level of expense. To help uncover the problem, I did two things. First, I established an expense budget to cover each type of expenditure. Second, I estimated a sales level based on supply purchases. Then I monitored results."

The help from the expense budget really occurred in the monitoring process. Canbia reports, "Everything looked okay when I compared receiving reports to invoices. I actually got everything I ordered and paid for. The problem was that when I subtracted inventory from receipts, marked the difference up to sales price, and compared the results to the snack bar's cash register tapes, it didn't come out right." Canbia discovered that his clerks were robbing him of $400-500 per month. If he had invested time in preparing an expense plan by business segment, by month, by cost account, he reports that he could have identified and resolved this problem much sooner.

Keep in mind that a growing business requires more than an investment of your time. It also requires an investment in supporting assets. These include: accounts receivable (for credit sales), inventory, and capital equipment. Failure to recognize and plan for these investment needs in a timely manner can also create considerable business problems.

Investment Plan

Jean Theisen's business makes and sells doll clothes. She does her own designing, and when she first started out, she did all the stitching, too. Word of her unique doll fashions soon spread. Over the years she grew, gradually moving from a sewing machine in a corner of her bedroom, to a small storefront, to a larger production facility.

Theisen says, "The market for my doll clothes looked good. I'd been very successful on a small scale. The time to expand looked right. I decided that I could move from being a local to a regional supplier." This meant larger accounts, a different distribution network, more employees, fabrics, suppliers, storage space, and equipment.

Theisen's story was well on the way to a happy ending when it ran into a lack of an investment plan. The results were devastating. Theisen reports, "What I failed to realize was that the investment required was more than I could handle alone. My new, larger customers demanded comparable "trade" credit terms; previously I had been able to get advances from many of my customers. I had to produce larger quantities. This required more employ-

ees, equipment, materials, and space. I produced early and held inventory for shipment during the Christmas retail season. Interest costs, warehousing, rush shipments, and higher selling costs mounted up. I needed cash. My suppliers demanded payment, and I couldn't collect from my customers. In a panic, I had to try to get money wherever I could."

Theisen asserts, "My life would have been a whole lot better if I had developed a time-phased plan that identified when I would need financing – before the need arose." She states, "By having a plan, I could have arranged needed financing in advance. This would have improved my credibility with potential lenders and given me an opportunity to negotiate lower interest rates. In addition, I could have envisioned some of the problems with inventory, accounts receivable, and furniture and facility needs in time to step back and rethink my expansion process. With an investment plan, I would have had a much better understanding of my cash needs and my level of comfort with the growth process."

Cash Flow Plan

Cash is the lifeblood of any business. When you run out of cash, you are technically insolvent. The next step is bankruptcy. You must know how much cash is coming in, when you'll get it, how much is going out, and when it's gone. If you don't know your cash needs, you're not running a business, you're playing Russian roulette.

Theisen might still be in business if she had prepared a two- or three-year cash flow plan. She certainly could have predicted the results of increased sales. For each level of increase, say $100,000 increments, she could have estimated increased receivables, inventory, and equipment needs. She certainly could have forecast the production capacity and inventory required for each level of sales and category of customer. By taking these plans to her banker or the investment community, she could have received timely advice about interest rates and availability of funds, and received help in financing her receivables buildup.

Is your company about to join the ranks of the big boys? Do you operate in a highly competitive industry? Are you considering the introduction of a new product or service? Has your accountant just surprised you with a large profit write-off or inventory markdown? Is it time to add new equipment, furniture, or fixtures?

You can take action to get on top of these issues before they get on top of you. Establish this four-part financial plan for your future. Monitor your actual results against your plan on a regular basis. Identify financial problems before they become critical. A financial plan could mean the difference between profitable, long-term growth and immediate short-term bankruptcy. What are you waiting for? The business you save could be your own. BC

David Lindo is a syndicated financial analysis writer.

What Can We Do?

FOULBROOD: American & European

James E. Tew — Richard Bonney

American and European Foulbrood diseases seem to have taken a backseat in the minds of beekeepers, at least when compared to parasitic mites or honey prices.

The Foulbroods have not gone away, however, and we provide this special section with the most current information on prevention, detection and control. To reinforce this, there is an updated easy-to-use guideline sheet on Terramycin formulation, application and dosage.

We hope you find this information timely, useful, and profitable.

Life After AFB

Mites are currently getting most of the bee industry's press and funding. Since mites are the newer problem, I suppose that's how it should be, but could we have been too quick to downgrade other diseases, such as American foulbrood (AFB) infections, to little more than passing annoyances? "Put some Terramycin on that - it'll clear it right up". Well....not really. There's a lot more to diagnosing and controlling American foulbrood than that.

The study of all bee diseases is a necessary evil. Few of us enjoy dealing with diseases. Just take a look at most general beekeeping books. Usually, diseases and pests are near the end of the book. It's the last thing that most of us of want to address. Too discouraging. Of all non-mite bee diseases, I think AFB demands the most respect. It's a disease that many beekeepers fear and watch for (as best they can), but most don't take it too seriously until it's on the comb right there before them. On the other extreme, there are other beekeepers who ascribe nearly mystical attributes to AFB. "I don't even want that bee inspector driving that state car in my yard. His tires might have AFB spores on them!" That's an overkill. If there is a sin associated with American foulbrood, it's not that the occasional bee colony gets it, but rather that it was not recognized by the beekeeper and was allowed to spread. Recognizing symptoms of AFB is as important as being able to find the queen, see eggs, or recognize different types of bee brood. In 1992, thirty-eight US states reported that less than 1% of all colonies inspected had AFB disease (Shimanuki, 1992). That's certainly not a high infection level - unless it's in your hives.

What Causes American Foulbrood? The bacterium, *Bacillus larvae* is the only known causative agent. For those who are interested in the bacterium's pedigree,

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EFB - Still A Problem

Diseases are not a favorite topic for most beekeepers. Not even close. Not that they should be, either, but without question, diseases could stand more attention. Why do colonies contract specific diseases, what do the symptoms look like, what affect do they have on individual bees and on the colony? All of these questions are important, and too often the answers are unknown to novice beekeepers – or even to beekeepers who have been at it for a while.

Why are the answers to these questions important? The obvious answer to that question is that diseases kill. However, that is not the only answer. Not all diseases kill, at least, not all of the time, and bees can sometimes live with disease, often overcoming the disease, but in the process bee population usually declines. Then, honey production suffers, and for most of us, honey is what keeping bees is all about.

So – let's look more closely at disease, and more specifically, at European foulbrood (EFB), a disease considered not serious by most beekeepers. Because it is not considered to be serious, EFB has never received the same level of attention from beekeepers as has its big, bad cousin, American Foulbrood (AFB). Further, AFB is more recognizable, more dramatic, more deadly.

First, what is EFB? It is an infection in the midgut of young larvae, caused by the bacterium, *Mellissococcus pluton.* The question of how the disease first arrives in a colony has no solid answer other than that the disease exists, and drifting or robbing bees, or beekeeping management practices, can ultimately bring it to any colony. Once present in a hive the disease organism is circulated and transmitted in brood food as the house bees clean infected brood cells, exchange food, and feed brood. The larvae are attacked during the first two days of larval life, and death usually occurs before the cells

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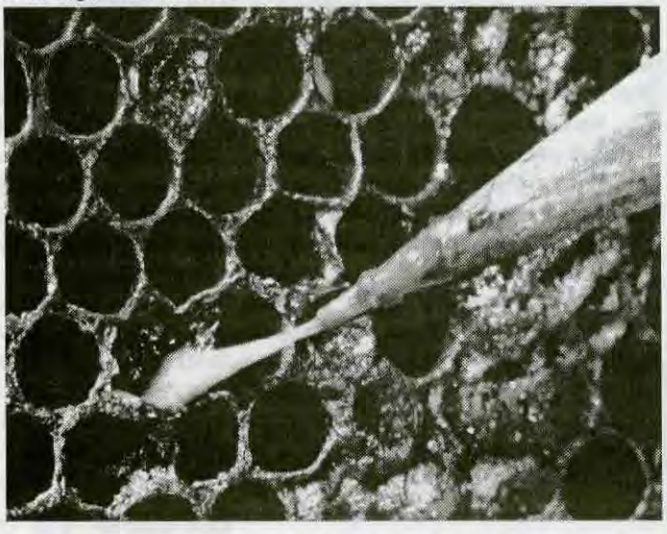
AFB ... Cont. From Pg. 29

it is a gram positive, rod-shaped, spore-former. The reproductive spores are rugged and can survive for many years in old comb or on old equipment. Even so, when all characteristics are considered, *Bacillus larvae* is not a particularly unusual bacterium. All forms of honey bee larvae - worker, queen, and drone - are susceptible to the disease. Adult bees, through they can be carriers, are not susceptible to infection. Spores are ingested, and somewhere along the alimentary tract - probably in the mid-intestine, the spore develops into the bacterium and grows - much like a seed grows into a plant. It takes seven days for the disease to fully manifest itself in a larva. Infected larvae die from a bloodstream contaminated by: (1) toxins produced by Bacillus, (2) from large numbers of vegetative bacterial bodies, or (3) from reproductive spores contaminating the bee larva's blood (septicemia). A larva must be infested by varying numbers of spores early in its life (24 hours or so). Normally about 35 spores per bee larvae are enough to infect about 50% of one-day-old bees in most colonies. Just as some people are more or less resistant to various diseases, individual bee colonies have varying degrees of resistance or susceptibility to AFB. Older larvae are not susceptible. Though there is not much good news regarding American foulbrood, it is a positive point to report that neither humans nor animals are susceptible to *Bacillus larvae.*

What does American Foulbrood look like? Larvae that die from AFB infections are extended lengthwise in the cells rather than in the common "C" shape exhibited by healthy larvae. In most cases, the dying larvae is capped just before death and cannot readily be seen. As infected larvae die, small punctures are made by housecleaning bees as they begin to uncap the putrefying larvae. These small pin-hole punctures should not be confused with the normal center opening briefly left in healthy larvae as they are capped. Due to decaying body fluids soaking through the cappings, they are oily-looking and concave. At one stage in the degradation of the dead larva, the dark brown body fluids are at a consistency that will "rope" out about an inch when a probe is inserted and pulled away. Finally, the pupae will dry down to a black, flat, gummy mummy (say that fast several times). An occasional dried mummy will have a tongue-like structure sticking straight up. The entire scene will be accented with an aroma of sour, vinegar-like decay. It's not an offensive smell, but neither is it pleasant. Curiously, many people cannot smell it at all -even with the comb right under their nose.

The classic field test is to insert a probe into a cell and withdraw it. An infected larva will stick to the probe and be pulled out in a thin, rope-like residue.

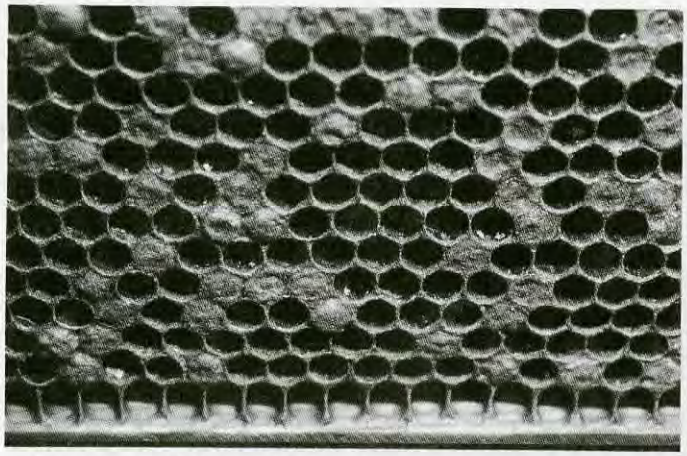


Can AFB be controlled once it has infested a colony? Yes it can. In fact, not all colonies that get the disease die from it. On several occasions, we have had AFB infested colonies show no signs of the disease several months later after being moved to a "hospital yard". The major problem is - which colonies are going to show resistance, when, and why. You simply can't tell. Many seasons ago, I worked all summer destroying disease-infected brood frames and feeding caged honey bees Terramycin. Ultimately, I was able to control the diseases in most of the colonies, but at the end of the summer, they were weak and were not prepared for winter. I had to struggle all Winter to keep them alive - most of which died anyway. Was is worth the effort? No - not for the practical beekeeper. It's a very serious decision to undertake AFB control programs. It's a lot like deciding to keep rattlesnakes as pets. You had really better know what you are doing before undertaking the project. You should also know that many of your beekeeping neighbors will not be impressed with you devotion to your sick bees. In many instances, you will be accused of providing the infecting source in the neighborhood and few beekeepers will buy your equipment or bees. Once again now, can you control American foulbrood with drugs and manipulation? Yes you can, but it is a very important long-term decision and should only be made by a competent, experienced beekeeper. Sadly, for the smaller and more inexperienced beekeeper, destroying (by burning) the bees and brood frames within the infected colony is still the best measure.

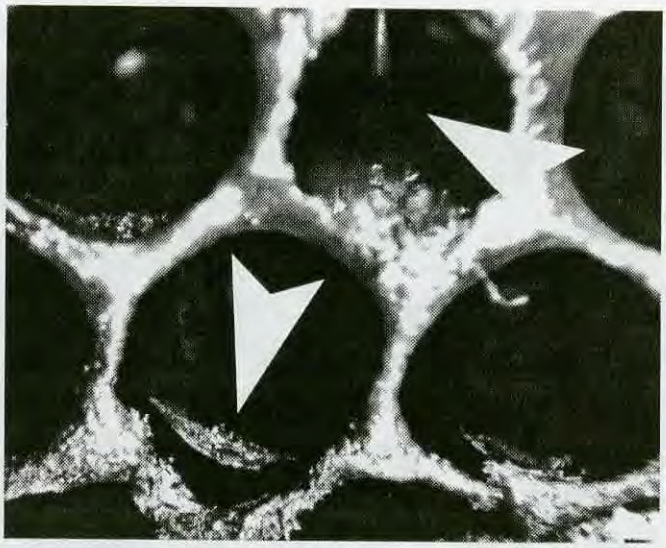
Earlier this year, the local bee inspector, while examining a beekeeper friend's hives, found AFB in his six colonies and even in his observation hive. The inspector noted that the hives, all but one, were very strong with lots of bees and lots of brood, and opined that AFB appeared to be in early stages. Additionally, the inspector wondered where it came from since there were no registered hives within several miles of the infected yard. I thought you might want to read the questions the First-Time-Infected Beekeeper had and the responses that he got from me and others.

QUESTION Could this AFB possibly have come in with the packages I installed earlier this season?

ANSWER Where AFB comes from is usually a mystery. It could have been something as mundane as a jar of contaminated honey that was packed in another distant state and tossed into an open trash receptacle in your area. I doubt that you will ever know. Besides, many hives are not registered. I doubt that the AFB came from the packages. AFB affects very young larvae. Adult bees are unaffected though they can transmit spores to young bees. By the time your packages were shipped, installed, comb built and produced young larvae of the right age, the contaminated bees would have likely voided all the spores



Appearance of frame with American Foulbrood with scales in many of the cells. Look closely.



Progressive stages of AFB: tongue adhering to cell roof and scale sitting on bottom of cell.

QUESTION Since the hives are strong, the inspector suggested treatment with Terramycin instead of hive destruction. So I mixed a package of TM-25 with 2 pounds of powdered sugar and gave the first treatment last Thursday, will do second treatment today, and third four days from now (approximately three to four day intervals). Is this an appropriate remedy, and if so, how and when can I tell if it is working?

ANSWER Yes, using some approved mixture of Terramycin is the only legal remedy. Sprinkle a tablespoon or so of the sugar/Terramycin mixture on the outer edges of the brood frames in the brood chambers as per label instructions **(See the new instruction sheet following this article for Terramycin/sugar mixture formulas).** Also, remove as much of the dead brood inoculum as possible - even if means removing entire frames. After a few days/weeks, the diseased larvae should be cleaned out (depending on hygienic behavior), and all will appear normal.

QUESTION Now that I have AFB spores in my hives, should I plan to treat with Terramycin regularly for the rest of my beekeeping life? And if so, on what kind of schedule?

ANSWER Plan to treat for the foreseeable future (two years or so). Finish the series that you are currently administering and work with the inspector. If he is still seeing signs of AFB after your first treatment has ended, go through another Terramycin treatment series. Once the visible symptoms are knocked down and all seems normal, treating once in the spring and possibly in the fall would be a common maintenance treatment. Finding your first AFB is like finding mites in your colonies for the first time. It's a passage to a higher level of responsible beekeeping. If you keep enough bees long enough, you are going to have an AFB flare-up. After a couple of years of maintenance treatments, you may feel comfortable pulling the treatments off and seeing if the malady returns....which it probably will sooner or later. Will it be the same infestation or from a new source...who will know. (Refer to question #1 again. You never really know where it comes from.)

QUESTION I have been letting a couple of other beekeepers use my honey room for extracting their honey. I pulled all my honey supers before putting in the Terramycin and finished extracting yesterday. Am I being careful enough?

ANSWER Pulling the supers was the right thing to do. Any surplus honey produced after your treatments started should only be used to feed back to the bees. NEVER feed Terramycin during a flow when surplus supers for human consumption are on the colony. In fact, everyone involved in this caper should be inspected. Is it possible that you got AFB from your beekeeping friends?

QUESTION Would I now have AFB spores in my extracting system, particularly in the capping removal tank and the extractor, which could transfer to someone else's frames and therefore infest their hives if the frames are inserted next season?

ANSWER Probably not, but I doubt that you would ever convince them of that notion. By far, most of the contaminating spores are within the afflicted brood and "possibly" in the band of honey that surrounds the brood pattern. These frames are not commonly extracted. Any spores that were transferred by bees up into the supers are very improbable sources of AFB initiation. Wash the equipment thoroughly and use a dilute sodium hypochlorite (a 10% bleach solution) solution as a final wash and rinse well.

QUESTION If the AFB spores came home with me, will they persist in the capping wax, take up residence in my capping melter, wax rendering equipment and candle making molds? Indeed, will these seemingly indestructible spores take up residence on me and transfer to any bee equipment I touch in the future?

ANSWER It commonly takes about 35 spores invading a larvae of the appropriate age for the disease to express itself. That's actually pretty demanding. Spores may very well be in and on the sites you listed, but they are highly improbably sources of infestation. AFB is spread by: (1) bees robbing infected nests, (2) drifting bees, or (3rd and most likely) the beekeeper spreading frames through splits or brood frame manipulation. Getting AFB from packages, swarms, dirty hive tools, the

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AFB ... Cont. From Pg. 31

Sometimes destroying by burning is still the best measure.

tires of your car after driving through a contaminated yard, gloves, or the soles of your boots, are all very improbable sources for AFB contamination. Again, AFB is most commonly spread by bees robbing infected nests, or by infected bees drifting to neighboring colonies, or the beekeeper spreading frames through splits or brood frame manipulation.

FINAL ADVICE The most important thing you can do is learn to recognize AFB at a glance. Then learn to respect it and control it, but don't fear it. It's just a common bacterial infection. Have you ever personally taken an antibiotic? Sure you have. Will you be taking another at some time in the future? Almost certainly. So you don't really expect the last antibiotic you took to protect you forever? Then why is it surprising that your colonies may need future treatments for future infections? Treat your colonies as you would yourself..... Now having said all that, get this AFB stuff under control pronto! Work closely with your inspector. For active infections (and most other times, too), I would vigorously recommend using the powdered sugar treatment rather than the extender patty procedure. Nearly all colonies will eat sugar, but there are frequent colonies that won't take extender patties very well. Finally, and still in my opinion, because it contaminates the equipment for the foreseeable future, AFB's damage is worse than that of mites. Learn to recognize BOTH American foulbrood and mites. But you are on the right path - just be sure to stay on that path. Good luck. BC

James E. Tew is State Specialist in Apiculture, The Ohio State University at Wooster, Ohio 44691, Tew.1@osu.edu

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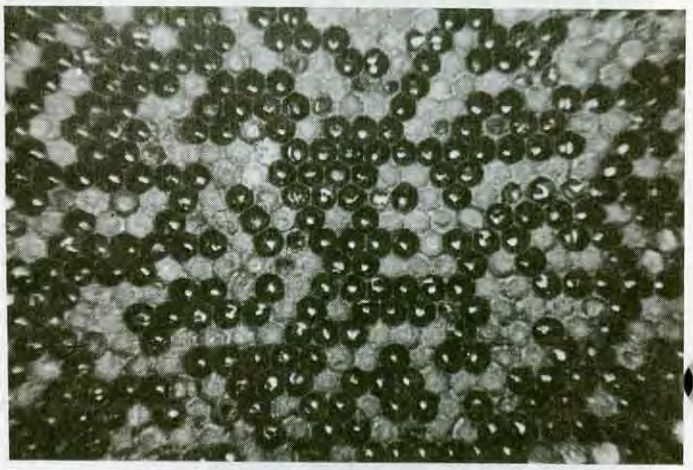
EFB ... Cont. From Pg. 29

are capped, although on a few occasions the larvae do not die until after the cells are capped. The beekeeper's view of the disease then is usually dead larvae in open cells, as compared with AFB where the larvae normally die after the cells are capped.

To the beekeeper, EFB first shows as discolored dead larvae, usually coiled in the bottom of the cell. Normal healthy larvae are pearly white in color; larvae killed by EFB are a dull white, changing to yellowish, then brown, with the tracheal tubes becoming visible as silvery white lines.

Sometimes the dying larvae uncoil, assuming unnatural positions in the cell, almost as if they were writhing in pain as they died. Whatever the position, the larvae soon decay, melting down to form a scale. During this decaying stage the remains can be tested for ropiness by probing and pulling with a matchstick or toothpick. Although we think of ropiness primarily as a



European foulbrood frames typically have spotty brood patterns, but open, not sealed brood, with the larva twisted in the cell.

well known symptom of AFB, where a gluey string can be pulled out an inch or more from the decaying larvae, EFB may occasionally rope also, but the decayed material is not gluey and the rope, if any, will be quite short when compared to that resulting from AFB.

The decayed remains will dry out to form a rubbery, usually twisted, scale in the cell. This scale does not adhere to the cell walls as does that of AFB, and is easily removed by the bees or by the beekeeper.

EFB is sometimes confused with other disease or conditions in the hive. One condition in particular is chilled brood, that is, brood that has died from exposure when an unseasonal cold snap caught the colony by surprise. In such situations the brood cluster is forced to contract, leaving a portion of the brood nest unprotected from the cold. Extended chilling will kill the exposed brood, and the resulting dead larvae can look very much like those killed by EFB. However, the pattern of chilled brood is fairly obvious – a band of affected cells around the periphery of the nest where the cluster contracted and left them exposed, rather than affected cells mixed into the body of the brood area.

Generally, a colony can overcome a light or moder-

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Using Terramycin – A *Bee Culture* Extra

There are three formulations of Terramycin registered for use on honey bees to treat/control American foulbrood.

TM25 (often called TM soluble powder) is a water soluble mixture that comes in the familiar 6.4 oz. bright yellow package. TM25 contains 25 grams of active ingredient (oxytetracycline HCL) per pound of material. This can be confusing since the package has 6.4 ounces of material, but the bottom line is that there are 10 grams (10,000 mg.) active ingredient in each package.

Dosage of active ingredient/colony/treatment is 200 mg., which means a 6.4 oz. package will treat 50 colonies one time applied as dust or in syrup, or 12 colonies with an extender patty.

TM 50D is only available in 50 lb. bags and has twice the active ingredient per pound as TM25. Unlike TM25 however, TM50D is not water soluble. The 'D' stands for 'dispersible,' that is, the particles will evenly 'disperse' when mixed in a liquid solution.

TM100D is only available in 50 lb. bags, and is a bit harder to find. It has four times the active ingredient per pound of material as TM25, and twice that of TM50. It too is a dispersible material.

There are three methods of applying terramycin to a colony: As a dust mixed with powdered sugar; suspended or dissolved in a premixed sugar solution; or combined with granulated sugar and solid vegetable shortening as an extender patty.

There are several commercial products on the market that are premixed and ready to apply. These include (under different names) a powdered mix containing terramycin, powdered sugar and soy flour sold by Mid Con Agrimarketing and Dadant and Sons; and a premixed single, or bulk patty mix from Mann Lake. Though more expensive than the separate materials, mixing labor and dosage guesstimates are reduced or eliminated. Moreover, for a beekeeper with only a few colonies these products are actually cost effective as no excess product is wasted.

Dusting – 2 Rounded Tablespoons Final Mix per colony 3 times

When applying TM as a dust, thoroughly mix the appropriate amount of TM compound with powdered sugar *before* applying. Then, apply two slightly rounded tablespoons of the final mix per colony, one tablespoon per side of top bar ends. Make three applications at three to five day intervals, for a total of six tablespoons/colony/complete treatment. All product should be consumed for each treatment.

No. Colonies	TM	Powdered Sugar
TM25 6.4 oz.		
1	1 level Teaspoon	2 level Tablespoons
50	1 6.4 oz. pkg.	2 lbs. 12 oz.
TM50D		
100	6½ oz.	6 lbs.
500	2 lbs.	30 lbs.
1,000	4 lbs.	60 lbs.
TM100D		
500	1 lb.	30 lbs.
1,000	2 lbs.	60 lbs.

Syrup – 1 quart Final mix per colony 3 times

TM applied as a syrup can be tricky because when exposed to water TM breaks down rapidly and becomes ineffective. Apply the appropriate amount of soluble TM, or a TMD and powdered sugar *premix* to a quart of 1:1 sugar: water mix. Three applications are required, at three - five day intervals, and all syrup MUST be consumed between treatments to be effective. When using TM50D or 100D a premix compound is required first (mix the TM and powdered sugar together *first*, then mix this into the 1:1 syrup).

	TM only	1:1 Solution
TM25 6.4 oz.		
1	1 level Teaspoon	1 qt.
50	1 6.4 oz. pkg.	50 qts. (12.5 gal)
TM50D		
	TM+Pow. Sugar (Premix)	Amt. 1:1 Solution
100	6½ oz. + 6 lbs.	100 qts. (25 gal)
500	2 lbs. + 30 lbs.	500 qts. (125 gal)
1,000	4.1 lbs. + 60 lbs.	1,000 qts. (250 gal)
TM100D		
500	1 lb. + 30 lbs.	500 qts (125 gal)
10,000	21.2 lbs. + 600 lbs.	10,000 qts. (2,500 gal)

Extender Patty – 1 quarter-pound patty per colony

Applying Terramycin in an extender patty has some advantages, and some disadvantages. By mixing an appropriate amount of TM, sugar and solid vegetable shortening together, the life of the TM is extended, because the oil in the shortening protects the TM from coming in contact with water or water vapor in the colony. Further, only one treatment/colony is required because 800 mg. of active ingredient are in the patty. This reduces labor costs for mixing and trips to the apiary, but requires extra product.

The disadvantage is that some colonies, sometimes will not consume a patty. No matter what. This can occasionally be overcome by adding more sugar to the mix.

The exact formulation of the patty mix you prepare *must* include the correct amount of TM, according to the chart, but the amounts and ratios of sugar:shortening may vary depending on your mixing equipment and consumption rate/colony. TM is a bitter material and not well liked by bees. Sugar may be increased to compensate.

To meet label requirements the normal dose of 600 mg/complete treatment is increased to 800 mg/colony to compensate for the TM lost or not consumed. Patties made to these formulations are about a quarter pound, a reasonable (and consumable) size. If you have only one or two colonies we suggest you make up a package worth of patties (12) and immediately freeze those not used between sheets of waxed paper. These will last one or two seasons without difficulty.

TM25 6.4 oz. only	Shortening	Gran. sugar	No. patties
4 teaspoons	¼ cup	¼ cup	1
1 6.4 oz. pkg.	1 lb.	3 lb.	12
3 6.4 oz. pkg.	3 lb.	9 lb.	36

(Premix) **TM50D**+Pow. Sugar	Shortening	Gran. Sugar	No. Patties
1 lb. 12 oz. +6 lbs.	6 lbs.	13 lbs.	100
8 lbs. +30 lbs.	25 lbs.	50 lbs.	500
16 lb. 8 oz. +60 lbs.	48 lbs.	140 lbs.	1,000

TM100D+Pow. Sugar			
4 lbs. +30 lbs.	25 lbs.	50 lbs.	500
8 lbs. 4 oz. +60 lbs.	48 lbs.	140 lbs.	1,000
82 lbs. 8 oz. +600 lbs.	480 lbs.	1,400 lbs.	10,000

No matter which method you choose to use, make certain the dust, liquid or patty has been removed at least *45 days before the honey flow.* **THIS IS NEW.** The old label had a 30 day period. This will affect how you manage either of these diseases.

The greatest danger when applying TM is *underdosing* a colony, which can rapidly lead to the foulbrood organisms developing resistance to the medication. However, overdosing costs extra money. Careful attention to this detail will protect your colonies and save you money.

Information for this chart provided by Pfizer and Mid-Con Agrimarketing

EFB ... Cont. From Pg. 32

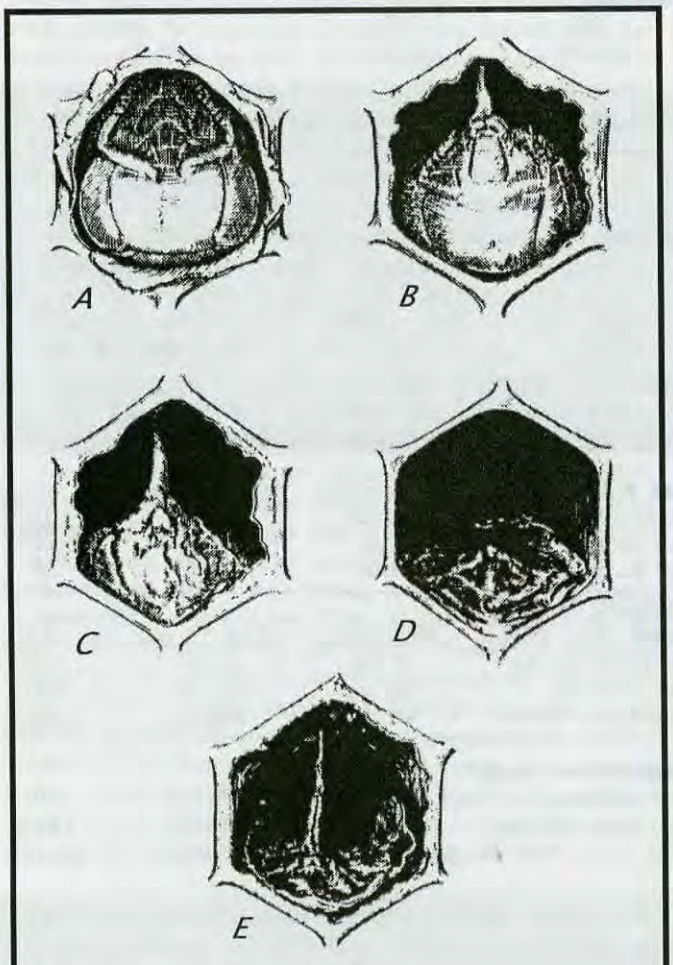
ate infection of EFB. Often the colony will become infected, cope with the problem, clean it up, and the beekeeper will never be aware that a problem existed. Other times the infection can become quite serious, threatening the colony.

If the infection is serious the beekeeper may notice a "shotgun" or "pepperbox" pattern in the brood area. Uncapped diseased cells will be interspersed with capped, usually healthy cells. Although the larvae most often die before the cells are capped, very occasionally they die after capping, and cells with sunken, discolored, or punctured cappings may also be evident. Although odor as a symptom is most often associated with AFB, EFB diseased brood may also give off an odor, described variously as slightly to penetratingly sour, intensely sour, or like rotten fish.

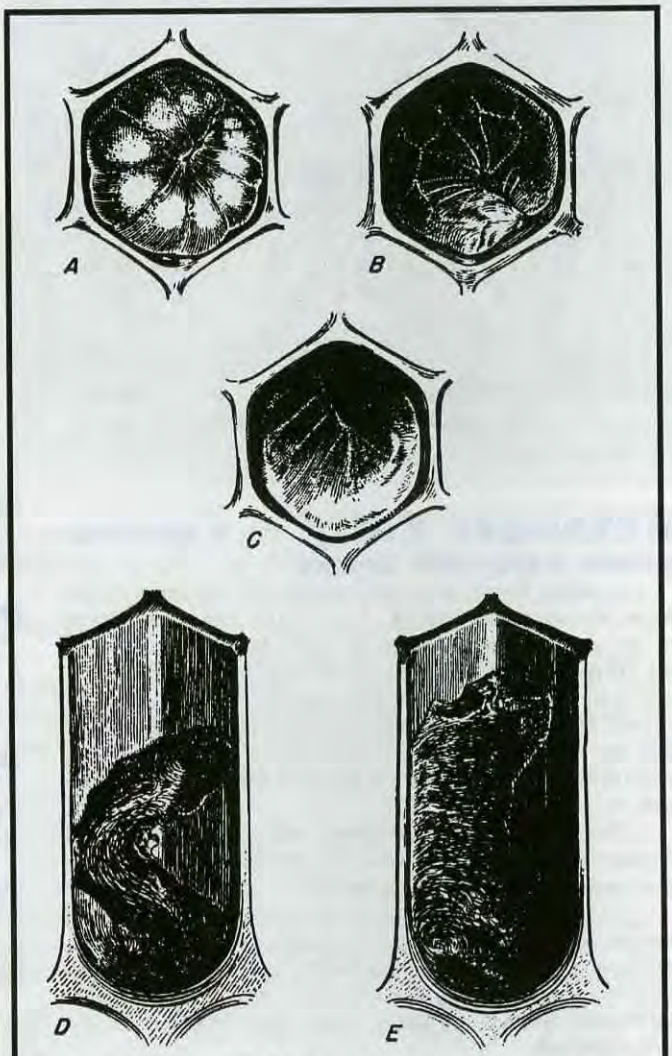
EFB is a seasonal disease and appears most often in the early season, mid- to late spring, as the colonies are building population. Treatment with medication is usually not required if the infection is light; most colonies can overcome the disease. However, if the colony is seriously infected, population lags and the bees may not be able to produce a honey surplus for that season. Further, the door is opened to other diseases. EFB usually subsides by mid-summer, although it may persist through the summer and into the fall. Other times, it may subside in the summer only to reappear in the fall.

While EFB is active in the colony, brood is dying. The amount, of course, is a reflection of the intensity of the infection. A colony that is in otherwise good health should be able to cope with the disease, removing the dead larvae quickly, and thereby removing the source for further infection. A colony that is under strength, or otherwise weakened by disease, mites, or other stress will not respond as quickly or thoroughly and the disease will probably get ahead of them. This leads to further loss of brood and reduction in population. While colonies usually can overcome EFB, sometimes they need help, and if honey production is your goal, they definitely need help.

How can you help? The first line of defense against any disease is to keep the colony in basic good health. Do this by ensuring, any time that you inspect, that the colony has an appropriate population for the time of year, that brood rearing is proceeding normally, and that plenty of food is on hand or coming in. Methods to



Successive stages of AFB. (A-C) progressive stages of decay; (B,C and E) show tongue adhering to cell roof; (D and E) show scale. USDA photo.



Honey bee larvae killed by European foulbrood, as seen in cells: A, Healthy larva at earliest age when brood dies of European foulbrood; B, scale formed by dried-down larva; C, one of several positions of sick larvae prior to death; D-E, longitudinal views of scales from larvae that were in lengthwise position prior to death. USDA photo.

TM as a dust. Use 2 rounded tablespoons/colony/treatment at 3-5 day intervals. Place on edges of frames. (Killion photo)

correct any deficiencies include requeening periodically – biannually is good – with a well bred queen, adding a frame or two of brood and adult bees, and feeding when appropriate. These are all a part of normal good hive management.

Then, if you don't medicate routinely, think seriously about doing so, especially if your hives are used for pollination, and more especially if they are used for pollinating blueberries or cranberries, or are kept in areas where these crops are grown. To explain – although EFB is found worldwide, and in this country, nationwide, it is enzootic in some states. That is, it is constantly present and presumably more of a problem in those states. Further, EFB has been identified as a particular problem with colonies used in commercial pollination, and a study I read of some years ago suggested that there is something specifically associated with blueberries and cranberries that exacerbates the situation when the bees come in contact with the blooms. I am not citing scientific evidence here, and I don't know if this observation has ever been proven. Just take it as a possibility.

The medication available to us in the U.S. that is effective against EFB is oxytetracycline (Terramycin), as is used against AFB, so if you are medicating against AFB routinely, you are covered for EFB as well. If you are not medicating routinely and a serious EFB infection appears, then medication is in order.

NOMENCLATURE

Over the many years since European foulbrood was first recognized, some confusion has existed as to the specific causative organism. Early on the organism was recognized to be a bacterium, but several scientific names have been associated with it, and these names, of course, still appear in the older and some of the not so old literature. Two of the names most commonly seen are *Bacillus pluton* and *Streptococcus pluton.* These are no longer the accepted names.

The causative agent is now known to be the bacterium *Mellissococcus pluton.*

Extender patties, using TM, vegetable shortening and sugar should be placed in the brood nest. To be effective the entire patty should be consumed.

MEDICATION LABELS

By law, every medication that we can legally give to our bees has label instructions included with the original package. It is important that we follow these instructions faithfully. Not doing so leads to possible resistance to treatment in the organism we are treating against, or in contamination of the wax in the comb, or contamination of honey. All of these are potentially serious problems.

Unfortunately, the purchaser does not always receive the label instructions when buying medication. Some, the readily available 6.4 oz. packet of Terramycin TSP for instance, does not carry the instructions for treating bees directly on the packet. Instead, the instructions are on a separate piece of paper that should accompany the packet but often has disappeared prior to the purchase. Other medication, which may be available in bulk and which do carry a proper label on the bulk container, are repackaged locally into smaller sizes. Often, no label instructions are made up by the repackager to accompany these smaller units, or sometimes instructions are given verbally. Verbal instructions are easily forgotten by the time you reach home.

The upshot of all this is that often the beekeeper does not know just how much medication to give, or how long the dosage period should be. When buying medication, insist on a copy of the manufacturer's dosage instructions – and follow them.

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EFB ... Cont. From Pg. 35

Even though a colony usually will overcome a light infestation of EFB by itself, if you do discover that your colony is infected there are some steps you can take to help them overcome the problem. Keep in mind that they are losing some amount of brood and population while they fight the disease. Perhaps you can lessen or compensate for this loss.

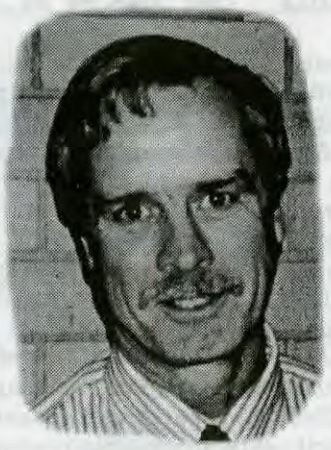
One method is to requeen the colony. A newly mated queen is more prolific. She will lay eggs with enthusiasm, resulting in lots of new brood, which in turn translate into lots of new house bees when they emerge. However, it will take this new queen at least a few days to settle in and build up to her normal rate of egg laying, so the colony will first have a brief period with less new brood developing. This will give the nurse bees more opportunity to remove diseased larvae without having to tend brood at the same time. Confining the existing queen within the hive to prevent her from laying for a day or two will accomplish the same thing, temporarily reducing the amount of brood to be tended.

Another method is to give the colony a frame or two of emerging brood from another colony. This burst of population as these new young bees emerge will also give the colony an abundance of bees primed and ready to clean cells.

EFB is sneaky. Even if you never see it in your hives, don't assume you never have it. A light infection can be cleaned up very quickly by an otherwise healthy colony. Keep your colonies healthy. BC

Richard Bonney is the retired Extension Educator for the State of Massachusetts, and a regular contributor to these pages.

Marion Ellis



PROFILE

Kim Flottum

Nebraska isn't the first state that comes to mind when discussing honey production in the United States. But as far as beekeeping extension is concerned, it's right near the top. The reason for that is the Extension Specialist – Dr. Marion Ellis. We caught up with this soft-spoken, almost shy, but dynamic teacher, researcher and family man recently. Here's his story.

Marion doesn't come from a beekeeping family, really. But his grandparents were farmers in eastern Tennessee, and his granddad had bees on the farm. So his introduction came early, and during high school he worked with, and learned from Leslie Little, a well-known queen breeder in the area.

After high school, Marion went to the University of Tennessee in Knoxville, but kept up with his colonies back at his granddad's place. His studies were in biology and English, he spent time in the Summer moving bees for Sourwood and selling honey to tourists in the foothills back home. By graduation he had 20 or so colonies.

After college he went to France for a year, to study French and to work. He took a job as a hotel clerk, where he was forced to learn the language to represent the hotel well.

After a year he returned to Knoxville and entered graduate school, majoring in agricultural biology. Courses included entomology, plant pathology, soils, and the like. He received his master's two years later. He still had about 25 colonies, moved bees for Sourwood, and while he was still in school he got married.

After graduation he and his wife entered the Peace Corps and moved to Peru. When the political climate got uncomfortable they moved to El Salvador, where Marion taught biology and beekeeping in vocational ag school. He taught beekeeping in Spanish, with lots of hands-on.

By now it was 1976, Marion was finished with the Peach Corp and he and his family moved to Ames, Iowa, to work at the USDA Plant Introduction Station associated with the university there. He worked for the agronomy department.

For four years he worked as a research associate, dealing with cage pollination, gene plasma maintenance, microscopy work, and field work. He studied plant characteristics, built a data base on disease resistance, and started using bees to increase seed set and efficiency for vine crop studies.

In 1979, the Nebraska State Apiarist position opened, Marion applied, and got the job. He kept that position for 16 tumultuous years.

Early on he was in charge of the registration program, but worked also to help beekeepers succeed. He promoted good beekeeping practices, helped at the state fair, taught beekeeping short courses, and even taught beekeeping at the university at Lincoln.

But with honey prices falling, the number of colonies in his state began to drop – from a high of around 130,000 in the mid-80s, to less than half of that by the mid-90s.

Part of this certainly was due to the arrival of the mites in 80s. The way the rules were initially, depopulation was required when mites were discovered. A single beekeeper suffered that loss, and the rules were changed. Instead, education and information exchange were tried. There were lots of meetings between government officials, including Marion, and the state's beekeepers.

The program gradually went from 'regulation' to 'service.' Eradication didn't work, so beekeepers were trained to treat their own bees (official samples took two weeks), queen and package producers were carefully

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PROFILE ... Cont. From Pg. 37

selected, and things had just started to settle down, when, in 1987, *Varroa* arrived

Eradication wasn't even considered this time, and although some quarantines were set up, Marion, working with state and federal officials, got a Section 18 for fluvalinate applied to colonies on strips of wood.

Also back in 1985 Marion started back to school, working on his Ph.D. As a part-time student for several years, he eventually stepped down from his regulatory position in the early 90s and went to school full time, supported by his wife for the duration.

He finished in 1995 and was offered the State Apiculture Specialist position, with 20 percent teaching and 80 percent extension responsibilities.

He teaches a beekeeping class that includes biology and practical beekeeping. But he's also involved in a 'Teaching Teachers' program that includes insects in the classroom and some 'hands-on' biology involving the environment, horticulture, and agronomy.

Marion's extension duties involve producing fact sheets, a newsletter, a web page, how-tos, and other publications. All are available electronically, a medium he's been very productive with so far.

Although his Ph.D. research was in tracheal mite control using monoturpene chemicals, his current research includes *Varroa* mite biology and control. As in many scientific endeavors, funding is an ongoing challenge.

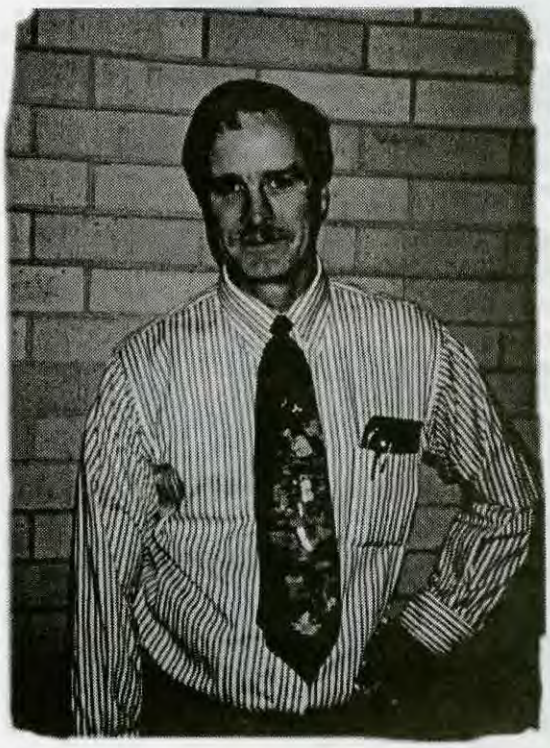
Marion also has continued his Field Day programs, including a three-day Master Beekeepers program that's nationally recognized. Limited to only 60 people (he turns away many every year), it is a service-based program consisting of classroom, hands-on lab, and in-colony experience. There's lots of basic biology and how to apply it, plus biology that's not so practical along with lots of fun facts about bees.

The attendees take a test, but test-taking isn't the focus here; the learning is. Graduates make good spokespersons for the industry, and are good beekeeping resources for schools, the community, and other beekeepers.

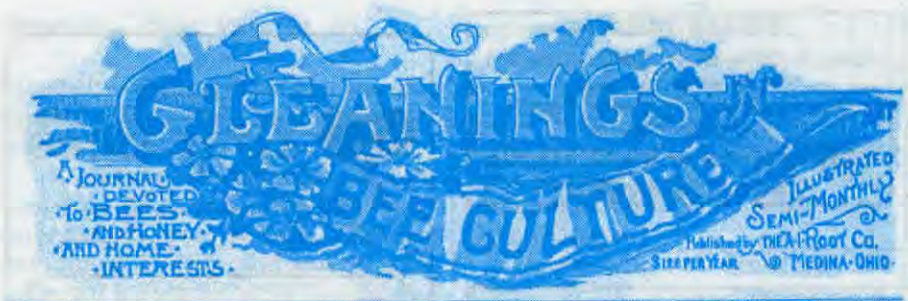
Marion's work with Nebraska's commercial beekeepers has focused primarily on mite control and working with growers to reduce pesticide problems in the state.

Now with only 20 or so colonies (he once had as many as 200), he keeps his hands (and those of his two children – one in high school, one college age) in the business and revels in the enjoyment of bees and beekeeping.

And, with a wealth of experiences under his belt, there's no doubt this quiet, unassuming, and immensely popular teacher, researcher, and beekeeper will continue to be of benefit not only to Nebraska's beekeepers and citizens, but to the rest of our industry as well.BC



Marion Ellis



VOL. XXVIII. JAN. 1, 1900. No. 1.

1900 *Gleanings In Bee Culture* was still published twice a month in 1900, cost a buck a year for a subscription and averaged 32 pages per issue. The old regulars were still in every issue – Stray Straws by C.C. Miller, Heads of Grain, Questions & Answers, Conversations with G.M. Doolittle, California Echoes and The Rambler by C. H. Martin, Pickings by Stenog (The Root Co. typesetter), High Pressure Gardening, Our Homes and occasionally Health Notes by A.I. Root.

The two national groups finally saw the light and 'amalgamated,' electing Eugene Secor General Manager, and E.R. Root, President. They would accomplish much in the next two years.

The Rambler predicted, early in the year, that beekeeping in California would have a brilliant future. He also suggested that the automobile would be important in beekeeping very soon. It would replace horses, certainly, and by running pulleys from the axles would power extractors, uncappers and anything else needing power.

A.I. suggested customers use a 'Post Check' instead of cash when sending in orders. They were the prototype of postal money orders, and could be replaced if stolen. Cash couldn't.

Candied honey (granulated) was promoted by Colorado's Aiken, since it was easier to ship, pack, and in his area, sell. Making a consistent product, quickly, was the problem. This was earlier shared by Ohio's Muth, who developed quite a candied market several years before.

By early Spring the Root Co. had three million sections on hand, had exported 20 carloads of equipment, put over 100,000 catalogs in the mail and E.R. had drawers of unpublished manuscripts on hand.

Black brood disease was still troubling beekeepers in New York causing serious losses in the Eastern part of the state. It was described in some detail as starting with a yellow spot on the larva, which then turns brown or coffee colored, has a somewhat sour smell and ropes out just a bit. W.R. Howard, from Texas explained in a seven-page article its spread, cause and cure. Affected larva were 'sharp' on the ends and cell caps weren't punctured or sunken. A strong honey flow stops the problem, but a honey or pollen dearth seemed to instigate its beginnings. Any ideas?

An article that Spring suggesting that queens mate more than once was published, but E.R. thought the concept unbelievable. Oh well. Meanwhile, the Root Co. was selling Kodak cameras and Cleveland bicycles and was paying 26¢ for wax, or 28¢ in trade.

Early Summer, and three of the National Beekeeper's Association Board raided a prominent Chicago operation producing adulterated honey. Eugene Secor, Moore and York were commended in the Chicago papers and all the bee press for their actions. Know any heroes, anymore?

E.R. made several suggestions early that year. Paint all your hive working equipment red, so it's easier to find in the grass. Write your congressman to support the Federal Pure Food Act, and, if you'd hurry and resubscribe right now, he'd send you a barrel of potatoes as a premium. At the same time, The Root Co. was implicated in an adulteration scheme, but was later proven innocent – and framed. How dare they pick on someone as honorable as A.I.!

It was decided that year, more or less, that the 10 acre basswood planting was a failure. Not because basswood wasn't a honey plant, but the location of the orchard had been poorly chosen. Very poor drainage, even after tilling seemed the biggest factor. But a secondary problem was a canker disease killing, or hurting the trees. Another time, another place, perhaps.

Everyday the Root Co. received samples of brood comb and dead bees to diagnose. The secretarial staff was usually less than amused by the smelly, gooey, packages often received. To help eliminate that, and since diagnosis was becoming more and more sophisticated, E.R. suggested that readers send samples to a scientist in Texas (the black brood person). Also, send $2.00 for an answer. That Summer, A.I. visited the Ag Experimental Station in Wooster, examining pears, grapes, plums, wheat and their greenhouses. No beekeeping extension person yet, Dr. Tew.

Belgium hares flared on the scene that year, with lots of articles on how well raising them meshed with keeping bees, lots of fine photos, endorsements and ads for breeders. A year later you couldn't give them away.

In August, A.I. went camping in Canada and talked about the food, the stars and fishing. He left early, but had a good time. That same month E.R. purchased a stereopticon, the first slide projector. He had dozens of lantern slides made, of the Root Co., apiaries he visited and beekeepers he met on his travels. We still have some of his originals. It was an immediate hit at meetings, and created quite a stir. He was instantly famous, as were the people he showed on the screens. The 3,000 candle power machine, and his 200 slides were the main attraction at the Chicago meeting that year.

That Fall, the International Apicultural Congress met in Paris. Representing the U.S. were C.P. Dadant (originally from France), and J.T. Calvert from the Root Co. J.T. sent in several articles on the meeting, and on beekeeping in France. He wasn't impressed.

Long tongues were still impor-

tant, and clover corellas were examined in depth that Fall in all the journals, and A.I. was on the war path (so to speak) on temperance in Ohio, and the U.S. Medina, too, was taken to task for even considering opening saloons.

Continuing the long tongue theme, and marketing advantage, Root developed a $200.00 queen, and would only sell her offspring with a subscription. And, are you ready for this? That Fall the Root Co. took in several hundred National American bicycles to settle their account. Though not the top of the line they were an O.K. product. Regular price was $30.00 but you could get one for only $17.00. Or, you could trade for honey if you had some. And *every one* was personally tested by A.I. himself. Such a deal!

Here's a first. In September, J.H. Martin, The Rambler, detailed how to remove bees from a super by laying a cloth that had been soaked in carbolic acid on the super – the first (recorded) fume board, that had been used in California for already a few years.

Another product beekeepers could sell is honey vinegar. Easy to make (instructions were sketchy, and essentially wrong since fermentation was common), and better than apple vinegar, every beekeeper should consider this product. Every nickel, you know.

C.C. Miller, in the Fall, reported on propolis being used in South Africa for treating wounds, and reducing the number of amputations required during their war there.

The long tongue reports continued, and E.R.'s comments on how to measure a tongue resulted in hundreds of samples sent in for him to measure. He would chloroform the bees (they *had* to be alive when they arrived) and do his measurements. Dead bees' tongues would snap off, he said. Average length was .13 - .16 inches. The longer tongues, those able to take advantage of (at least the shorter) red clover corellas had to be .18 inch. Longer was, according to some, better. The American way.

Bottling honey techniques were still being developed since extracted honey was still gaining market share, and everybody had their own style, equipment and rules. To standardize this, *Gleanings* ran a series of articles over that Winter and into the next year on how-to, written by several (then) commercial-sized packers. Heating to 160° - 180°, then holding at 160° for an hour stopped granulation, and was the system used by the Root Co., a large packer at the time. Sealing jars with steamed corks, and covering that with a mixture of beeswax and paraffin finished the process. More later.

At the end of the year the Root Co. was testing an uncapping machine, and M.L. Stachelhausen described in detail his 'Shook Swarm' method of producing comb honey. It is still being used by famous comb honey producers today, essentially unchanged.

1901 E.R. starts off 1901 with an Editorial saying the government should support beekeeping meetings, and not spend money on the guns used in the military – the guns or butter (or honey) discussion again.

Most of the regular columnists were still present, but by now some of the temporary columns were gone – mostly the beekeeper-written ones while the writer-written ones still flourished – Miller and Doolittle dominated certainly. But others were present on occasion.

The case of Utter vs. Utter was finally settled that year. Utter the fruitman sued his brother, Utter the beeman, for damages to his peach crop by the bees. A fairly lengthy court case proved the bees couldn't probe holes with their mouth or their horns (antennae), or their stinger. Testimony by scientists and fruit growers was overwhelmingly positive. Testimony by fruitman Utter, and his wife bordered on the ridiculous. The jury took about 10 minutes to decide. *Gleanings* ran a synopsis of the trial, then published pictures of Utter the fruitman, the defending attorney, the judge and some of the scientists. Can you imagine the next Utter family reunion?

Early in the year A.I. published an article on Mrs. Booker T. Washington at Tuskegee, and her all-girl beekeeping club. Photos included. He caught some flack from some 'less enlightened' readers, and lost some subscribers in the South. But he kept many from the North, so it all balanced out, or so he thought.

C. Aiken again brought up the need for a national honey co-op, modeled on the Colorado co-op. "Co-ops reduce the profit of middlemen, but increase profits of producers" he said. Can't argue with that logic, even today.

Comb honey prices, by the way, in February were Fancy - 16¢, No. 1 - 14¢, No. 2 - 12½¢, buckwheat - 11¢, extracted buckwheat - 5½¢. Wax was 25¢, 29¢ in trade.

There was a fire in the building the *American Bee Journal* was housed in, in Chicago, with a total loss of the Root goods sold there and the magazine. York moved about 10 blocks and never missed a beat on the publication.

Belgium hares were no longer popular, co-op guidelines were published (should anyone want them), long-tongued Root bees were making huge crops, California was finally having a good year, and C.P. Dadant wrote a long diatribe on the evils of tipping waiters, doormen and drivers.

The Question and Answer column, by the way, never did publish the Questions – just the Answers. E.R. didn't have space, he said, for all the questions. It was popular nevertheless, and got bigger as the year progressed.

The series on how to bottle honey continued, with the focus on straining, draining, cleaning and bottling. One thing we don't need to worry about today is cleaning the glass splinters from the jars' insides, using a screwdriver, or a file. Imagine the liability of *that* problem today. Of course bottles needed to be washed because they came packed in straw, and had loose glass on the outside, too.

Beneath the machine shop of the Root Co. a huge basement nor-

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125 YEARS ... Cont. From Pg. 41

mally held potatoes (for seed, for food and for premiums to the magazine). That Winter (1900) E.R. had 35 colonies moved in, separated from the potatoes only by curtains of burlap. They opened the windows when it was cold to keep the temperature down, and closed them when it was warm, for the same reason. Hardly a gallon of bees were on the floor in April when they were removed. All survived and E.R. was incredibly enthusiastic. More later.

From the middle of December, 1899 to mid-April 1900, Root had sold 62 carloads of equipment, 26 of which were exported. A carload weighs, for your information, 30,000 lbs. They were selling one million sections a *week* in April, and could make 90,000 a *day*! They were also making brass smokers, but not endorsing them strongly. They didn't rust, though.

A.I. was in Florida, and took his first ride in an automobile. He went five miles. It took 22 minutes. And Root was selling queens with measured tongues. For a queen with a tongue .19" - $10.00; .20" - $15.00 and the longest .21" - $25.00. Can you imagine doing *that* for a living?

E.R. traveled the West that Spring, visiting Texas, New Mexico, Arizona, California, Idaho and Colorado. He detailed many of the beekeeping operations he visited, talking about 'beekeeping paradises' he saw. One biological difference he noted was that bees swarmed *before* the honey flow, then, when the flow starts, swarm cells are torn down and, of all things, drones expelled. Unheard of. Absolutely unheard of.

Huber Root, E.R.'s younger brother is attending college at Oberlin (about 15 miles from Medina), a well-to-do private college, but will, this year, help the Company at the Pan American Exhibition at Niagara Falls.

Around mid-year A.I. writes a long Our Homes column on the fate of America's 'loose women,' destroyed by drink, tobacco and men with no morals or ethics. According to statistics he got somewhere, every *hour* in the U.S. 177 women were destroyed by these evils.

In June C.C. Miller turned 70, and several machines (flossometers) were shown that could very precisely measure a bee's tongue. To the tenth of a millimeter if you'd like. Root's new wax press, copied from a German model came out then, for only $10.00, and large enough to handle an operation of 500-1,000 colonies. Hot water and pressure could get pounds and pounds of wax out of the debris left after a solar melter did its job. It would pay for itself in a half season.

A new hive tool was presented that year, designed in Australia. Similar to the flat tool sold today by Maxant's, it had a two-edged scraper on one end, and a curved frame lifter on the other. Close, but no cigar, yet, to what we use today.

Bees and the Law was always keen on E.R.'s mind, and he started publishing a column written by a lawyer. The first few articles focused on swarm ownership, property rights, trespassing and arguments about all of this. Next he tackled bee trees, and the problems associated with cutting down trees that don't belong to you. Especially if you live in town. Lots of gray areas here he says (in so many words).

The Root Co. expanded even more that year, adding a new wax building (nearly fireproof) and a larger printing press for the books, catalogs and, of course the magazine. Subscriptions were increasing monthly, says E.R., and are more now than ever, but he conspicuously quit giving numbers about now. More, but how much more?

As a result of his Western travels, E.R. said, when he returned home, "Within 10 or 20 years the larger amount of honey will be produced west of the Mississippi. The East will be narrowed down to small apiaries." You heard it here first, folks.

That Fall the Root Co. built a cellar to Winter their basswood outyard bees – 100 colonies in all. A pit was dug and lined with brick. An A-frame roof was put over it and the whole thing ventilated. Another 200 were put in the same basement as last year, with far fewer potatoes, I guess.

E.R. finished the year with a long article on how to prepare, package, grade and ship honey (comb honey) to wherever it was being shipped to. Broken sections, leaky, messy loads, wrong or fraudulent grading – all reduced the price beekeepers were paid. They were, said E.R., ". . . their own worst enemy." And the railroads were thinking of banning comb honey shipments altogether.

A promise from the Federal Government that every rural family would have free mail delivery within five years was hailed by A.I. as a great time saver for the common working man. And, of course, good for business.

And as Christmas was approaching, the Rambler packed his bags, left California and headed for Cuba, at the request of *Gleanings,* to report on the growing bee business from that island, not too far away.

And, the new decade continues next month. BC

COMMONSENSE STAIN 'N' SEAL

Michael Meyer

This system for bee box preservation goes back to some writings by Richard Taylor 20 or so years ago, whereby he espoused the use of creosote to paint and preserve both hive bodies and supers. After using it faithfully for a number of years and on several hundred bee boxes, my nose and lungs told me that creosote was not a fit thing for humans to breathe (much like tobacco smoke). So a system was eventually devised that kept many of the benefits of the creosote method but which eliminated its harmful drawbacks. As in all system designs, this one had several general goals. Among these goals were to have the bee boxes last in the weather for a maximum of time with a minimum of labor and at a reasonable cost.

To start, one must look at the most common system in use and improve on of its shortcomings. With this in mind, let us take a look at what most beekeepers do to their bee boxes. The generally accepted method of bee box preservation is to apply a coat of primer and then one or more coats of paint (usually white) to each new box. Then, after a number of years, when the paint fades, cracks and peels, the box is brought in (sometimes after transferring the bees to another box), the old paint is chipped and/or wire-brushed away, and more paint is applied over the old paint. For perfectionists, this presents a real dilemma, for to get the box really smooth is either impossible, or takes a ridiculous amount of time. Many times, especially if the beekeeper has tried to save some bucks by buying some off-brand paint or by not using a primer, the paint has faded or peeled in just a few years, adding discouragement to anyone's general outlook. Another disadvantage is that the use of the same color on every colony encourages drifting and discourages newly mated queens (from cells or supersedure) from finding their proper hive. In addition, the use of white or another light or bright color makes the hives stand out in their beeyard like sore thumbs, and encourages vandalism or theft.

The average cost of a gallon of primer is $8, and the cost of a gallon of paint is $12-$15, depending upon quality and brand, for a total of about $21 per gallon. The square foot coverage is stated on the container of paint; generally latex goes farther than oil, but does not last as long. Add to this the fact that paint neither seals nor preserves the end grain (at the finger joints of each box), and you have a system which is marginal at best.

A quick review of Forestry 201 tells you that wood breathes through the end grain. This is where most deterioration (rot) occurs. The knots in a piece of wood are a secondary source of 'breathing' although these do not tend to rot, but rather they fall out. The system I came up with eliminates the deterioration problem almost entirely, plus it is usually very cost-effective if one is not particularly picky over exact coloration.

This system absolutely eliminates scraping and brushing forever, plus boxes can be re-sealed in the field, so no transfer of bees is necessary. In addition, old boxes may be coated and preserved using this system, drifting is discouraged by the use of various color combinations, and the theft or vandalism factor is dramatically lowered because the hives blend into their natural landscape.

Before I get into the nuts and bolts of this system, let's look at the big picture. Beekeepers are more closely related in situation to someone who has just put up a fence than to someone who has just built a house. You'd like your fence to be practical and useful, to blend in with the surroundings, and to take a minimum amount of your time in maintenance over the years. What is most commonly used on fences and sometimes used on homes? Stains, of course!! Stains have the disadvantage that many times they neither seal nor preserve, and they will fade somewhat over time. This is where my homemade sealer comes in – it solves this problem.

Let's consider the camouflage factor. Since beehives are out in the field during all four seasons, what is the one color which is present year-round? Common sense tells us 'not green,' 'not white,' but maybe brown and certainly gray! Gray? you say. Look at the tree trunks from afar; look at the pile of bushes and brush from afar. They are gray in appearance, and if wood is allowed to weather, it also turns gray. So if your color staining slowly fades toward gray, a desired characteristic. Your hives will slowly become more and more camouflaged over time. Great!

What follows is a practical discussion on the materials, conditions, and applications to be used with the materials in this system. The first and easiest material to understand is the stain itself. I am able to pick up mismatched stains at paint departments like Sears in the off-season (all but Winter) for $.99-$2.99 per gallon. This compares with the $10-$12 per gallon regular price. You have to do a little inspecting and

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STAIN 'N' SEAL ... Cont. From Pg. 45

choosing to find suitable colors. If you take anything that's cheap, you might end up with pink, peach, or other unsuitable stain colors. Also, stains come in water-base, modified oil (water cleanup), and oil-base (paint thinner cleanup). For longevity, I recommend the oil-base stains, but the process of stain 'n' seal will take an extra 24 to 48 hours, plus these stains are less common and you may not be able to find the colors you want in the bargain pile.

For all-around ease of application and timeliness I recommend the modified oil, which still cleans up with water. The water-based stains many times take two coats to achieve the desired color, and thus take more of your time. Application is easy. Simply pile up your new boxes one or two boxes higher than head-high, spacing the bottom box off the ground and brush or roll the stain on until the desired color is achieved. If you use a roller, you'll have to trim up using a brush, so I recommend a good 4- or 5-inch brush. Sometimes the stain tends to drip from the handholds, so when you're done with the stack, carefully inspect all four sides and lightly re-brush any drips to blend. Now, simply let the pile dry. Outside drying can vary from a few hours for the water-based stains to several days for the oil-based ones. Inside drying can be hastened with the use of a fan. If you use the oil-base stains and do not let them dry completely, the sealer when applied will make a gummy mess of things, and the stain color will bleed through onto your brush. You are now done with stage one.

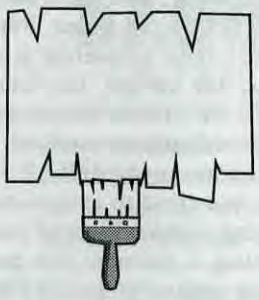
Stage two involves mixing and then applying the sealer. This tremendous sealer can be made by several formulas – here is a tried-and-true one – but feel free to experiment on your own. One part each of linseed oil, normal deck-type waterproofer, and mineral spirits, along with 1/2 to 2/3 part beeswax are mixed in a suitable container which can be heated many times (I use an old gallon paint can). Very Important: DO NOT heat this mixture over an open flame, but always heat it with water surrounding the container. For an average price of this mixture, one gallon each of the above three items currently sells for $10, $6, and $3 respectively, plus maybe $2 for the beeswax, assuming you use your own. This makes four gallons, so $21/4=$5.25 per gallon. Add this to the average $2 bargain price for stains and you get $7.25 per gallon, which compares very favorably with the $21 per gallon for the conventional paint mixture. Again, this sealer gets heated in hot water until the wax melts (maybe 150-160°F). This is then applied with a thin brush (3- to 4-inch) until all wood is coated. The end grain at the finger joints could get a second coat if the wood is very dry. The stacks of boxes are allowed to dry completely, which may take from one to three days, depending on the temperature, wind, and humidity. They will feel dry to the touch, and the sealer will have a squeaky feel if rubbed with a finger when all boxes are ready to be put into service. Your sealer mix will form a paste at room temperature if you mixed it right. If it is too liquid, reheat it, add some more beeswax, and allow to cool. If it is very hard at room temperature, you have put in too much beeswax and more liquid should be added in the same proportions as above.

Some additional hints on your stain 'n' seal system could include blending varying amounts of like-based stains to come up with new color combinations. This will bring out the creative spirit in you and lead to some unique colors in your beeyard. The versatility of the sealer is that it can be applied over existing paint on bee boxes in the beeyard, both latex and oil! It will enhance the longevity of either type paint, but must be applied hot in the beeyard. I take some extra gear consisting of an old pan, some water, and an outdoor, propane-fueled cookstove to the beeyard to heat the sealer. By the time other duties are completed, the sealer is ready to apply. With some care, it can be used around live bees with little damage. Bees coated with the sealer will always die, so be careful. Exposed wood on bottoms and tops can also be sealed at this time, especially the end grain. The brush can be cleaned somewhat with paint thinner, but will eventually get a buildup of wax that will come off only with heated thinner.

How can this system be used with existing boxes if another color is desired? Simply clean up the old box, paint it with a solid-color stain (the above-mentioned stains were all of the semitransparent variety), let dry, and finish it with your sealer. Another wonderful effect can be achieved on white boxes by going over them with a circular wire brush on a drill. This gives a mottled gray effect which changes the glaring white boxes into camouflage-gray boxes. The drawback to this particular method is that all boxes tend to look somewhat the same, so you lose the advantage that varying colors gives you.

Your sealed boxes will last three to five years on average in the field before needing another coat of sealer, but this re-coating can be done in the off-season, although cold temperatures are not the best for resealing. Boxes will get a 'thirsty' look to them when they need resealing. Sometimes it is enough to reseal the end grain only and leave the sides of the boxes until the next time. This system has been time-tested for about 15 years. It gives you hives which will blend very favorably with most country surroundings, and which will stand the ravages of weather for many years. Stay tuned for other practical 'common sense' bee articles in the future. Keep those bees alive! BC

Michael Meyer is a commercial beekeeper currently running approximately 900 hives in the Missouri Ozarks and Missouri Delta areas. He specializes in pollination, honey production, and nuc production with hygienic-type queens.



FINDING THE BEEKEEPER IN PARADISE

Ian Farber

Koekoe Mototupu, Ian Farber, John Mototupu

"An invitation to tea with the island's sole beekeeper proved to be the highlight of our holiday visit to this tropical paradise."

Vacationing "in paradise" on a small tropical island is wonderful. Finding the sole beekeeper in that paradise can be a fantastic experience and provide you with lots of memories, along with knowledge of how beekeeping is done in a different part of the world. I found that one beekeeper in paradise, and I will share the details of my search and the specifics of how beekeeping is done there.

On a recent holiday visit to Rarotonga, one of the many Cook Islands, I set out to try to locate any beekeepers on this small, beautiful island in the Pacific. Never having been south of the equator before, I was immediately fascinated by this tiny, remote island. Its picturesque rain forest jungles seemed to touch the clear, clean, blue waters of the many lagoons. Evidence of modern civilization was tempered by the slow, informal way of life on the island.

The Cook Islands are a group of small Polynesian islands located between Tahiti and Fiji. They are situated about the same distance south of the equator as Hawaii is north. To a resident of Canada, their year-round Summerlike weather appears ideal, especially during our cold and snowy Winter months. Rarotonga, the largest of the Cook Islands, is small by any standards. The main road is 32 km long (about 20 miles). It circles the island and provides a good view of the coral reef that surrounds and protects virtually all of the island. Politically, the Cook Islands are internally self-governing, but close economic ties are maintained with New Zealand. Cook Island residents hold New Zealand citizenship, and travel between the two countries is freely allowed. The main language is Cook Island Maori, but English is also spoken by virtually everyone. Having a week to relax and enjoy the island's sights seemed like plenty of time to complete the search for fellow beekeepers, if there were any on the island.

While walking about the area where my wife and I were staying I soon noticed honey bees on various flowers, so I knew there must have been a history of beekeeping on the island. Searching the local farmers' market seemed a good place to start looking for local honey producers and local honey. Numerous inquiries of the vendors at the farmers' market indicated no one had any knowledge of local honey producers. Local honey was not for sale. Searching the largest grocery store for local honey was not productive, as all honeys were imported, not locally produced. I continued this rather haphazard system of searching and inquiring for a few days without any success at all.

Finally, I found a local resident who knew of one beekeeper on the small island, but her directions to the beekeeper's house were very sketchy, and I couldn't locate it. While searching I passed the local Department of Agriculture office and thought that they might maintain records of beekeeping activities.

At the Department of Agriculture office I found out

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BEEKEEPER IN PARADISE ... Cont. From Pg. 47

that they didn't keep records of beekeepers, but one official did know of the beekeeper I was searching for. An introductory phone call was made on my behalf from the Department of Agriculture office, and I was immediately invited to the beekeeper's house for tea and to chat about bees.

It turned out that my invitation to tea had been made by the sole beekeeper on any of the Cook Islands. Upon arriving at the right house, I was made to feel welcome by my host, Dr. Koekoe Mototupu, and his son, John Mototupu. Koekoe is a "retired" medical doctor and beekeeper who enjoys talking about his bees whenever possible. Koekoe is retired from the medical profession, but John was in the process of renovating and adding on to his father's medical office and surgery. It appeared his retirement from the medical profession was to be short-lived.

Koekoe spoke of a bee club that had existed on Rarotonga about 10 years ago, but for one reason or another, the other beekeepers were now out of bees, and the club had disbanded. Koekoe was the last remaining beekeeper of this original group of about 10 members. Koekoe did have knowledge of a Dutch religious group on the neighboring island of Aitutaki, who during the 1940s made candles from beeswax obtained from their own bees. Koekoe has been keeping his bees with the help of his son John for the past eight years. However, John is a permanent resident of New Zealand and it appeared that his help was restricted to family visits and holidays. Over tea we chatted about Koekoe's introduction to beekeeping and the state of his honey business.

In the past eight years, Koekoe has built up his bee business from his first hive to the 80 he presently manages. He explained that this buildup had been achieved through splits and capturing swarms.

A small wooden building in the front yard served as Koekoe's carpenter shop, medical office, garage, beekeeping supply area, and honey plant. I asked for a tour and was shown around the beekeeping part of the small building. Koekoe's small amount of honey extraction equipment was stored along one wall and was not in use at the time of my visit. The whole building appeared to be less than 1,000 square feet in area.

Single beehive with typical corrugated iron roof.

Keeping in mind that this beekeeping operation ran approximately 80 colonies, I was surprised at the limited amount of beekeeping equipment that I was seeing. Extraction of honey was completed with only a four-frame, nonreversible, hand-powered extractor. Extraction was done three or four times per year, so this seemed like a formidable task. Much discussion and many questions centered around the work involved with extraction, but it appeared that no hired help was employed. Koekoe and his son John did all the work themselves. Uncapping was done with a big kitchen or restaurant knife heated in a pan of hot water. Supers were full-depth, standard-size, and these were used for brood supers and honey storage. A steam uncapper plane and pressure canner boiler system were available but had never been used. Dr. Mototupu didn't know how to set it all up and was quite glad to receive my comments on how I thought the steam uncapper should work.

One of the apparent difficulties in being the only beekeeper in the whole country is not having the backup that a bee club has to offer when a beekeeper needs practical advice. Dr. Mototupu does have a friend in New Zealand who is employed by the Department of Agriculture and who works with bees. Koekoe relies on his friend's infrequent visits to gain new knowledge. The Cook Islands Department of Agriculture does not have the manpower or expertise to assist in providing information on beekeeping. Much of Koekoe's beekeeping knowledge has been learned from reading bee books and from a subscription to a New Zealand beekeeping magazine. Koekoe's New Zealand friend has supplied Koekoe with some small beekeeping items such as a very old, hand-crank, foundation press. This allows Koekoe to manufacture his own foundation, one sheet at a time! The sheets of foundation are produced by adding wax to a rectangular tub of hot water and letting the wax cool into floating sheets which are then removed from the tank and run through the foundation press. Extremely high import duties and high freight costs make importation of beekeeping supplies very expensive, so Koekoe makes whatever he can. Koekoe was very proud of his operation and he conveyed the feeling that, although it was labor intensive and a lot of hard work, the four-frame, hand-powered extracting system was adequate for his needs.

Honey flows on Rarotonga take place year-round with extraction usually being done three times per year. Koekoe estimated his honey production to be approximately 75 to 85 pounds per hive, per year. Requeening with New Zealand queens is the normal practice every three to four years to prevent mean or aggressive hives from developing. This was confirmed by a local farmer who spoke of having to drive his farm tractor well away from a bee tree to avoid numerous bee stings. The bees in the tree were honey bees who had been there for years!

Koekoe's beeyards were located a mile or so inland from the sea and placed under tall trees. Tall grass and weeds needed to be cleared from around the beehives every few weeks, as this is a tropical rain forest island. Predators were limited to horses and wild pigs which could knock over a beehive. Bears, a nasty predator in

North America, are not known on the Cook Islands. Ants had built a trail into one hive but no obvious control methods were observed. A small lizard appeared from one hive we opened.

Beehives were definitely similar in every respect to the ones we are used to in North America, being nicely painted, standard-size, full-depth white boxes. Top covers were made of corrugated iron, possibly due to high lumber/plywood costs. Koekoe spoke about hoping to locate some 'salvage' lumber that he could use to build more beehives. Most of us do the same thing whenever we can to minimize costs. The one 'extravagance' was a reasonably new Toyota four-wheel-drive vehicle with a customized aluminum flat deck for use in the bee business. When compared to the usual state of vehicles in the Cook Islands, this was a luxury item. Koekoe's beeyards each held 15 or so hives, and four or five yards held the 80 hives. Koekoe spoke of having to do everything himself to keep down costs. Mechanical work on the truck was accomplished at home whenever possible. His other sidelines included doing a "little of everything," such as growing and selling a few pineapples, mangos and arrowroot.

Honey prices on Rarotonga were similar to prices in Canada and the United States. A standard 500 gram (1.1 lb) jar sold in the store for about $2.75 ($2.15 U.S.) when it was available. Prices at the honey house were quoted at $1.60 ($1.25 U.S.) per pound, in your pail. Jar costs were extremely high due to high freight costs from New Zealand. Koekoe was proud of the fact that he used glass jars for packaging his honey.

So, searching out the local beekeeper proved to be one highlight of my trip to the Cook Islands. In return for the tour and the knowledge I gained, I provided some advice to Koekoe on how to set up the steam uncapping plane, did a check for AFB in some hives, and advised on proper bee spacing and comb replacement. This was much appreciated as Koekoe relies on his friend in New Zealand for beekeeping advice, which is infrequent at best. Otherwise, when he hears of a tourist beekeeper on holiday in the Cook Islands, Koekoe makes sure to invite him/her "over for tea" so he can ask questions and talk bees. My search resulted in two visits and the inspection of a beeyard.

If your holiday time is flexible, search out the local beekeeper. I've had visitors telephone and stop by as they pass through my area. Inviting them in for coffee, showing off a beeyard, and telling about your local honey sources and timetable is often a highlight for the visitor. My experience has been that all beekeepers are 'behind' in their schedule and usually apologize for the mess. But most love to talk about their bees. Go for it! Search out the local beekeeper, make a new friend, and widen your knowledge of beekeeping in different parts of the world. BC

Ian Farber is from Kamloops, BC, Canada. He is a sideline beekeeper, freelance writer and avid reader of Bee Culture.

This Month's Honey Plant Is

B·O·N·E·S·E·T

B.A. Stringer

Boneset or Thoroughwort (*Eupatorium* species) was recognized by early beekeepers as a honey plant of considerable importance. There are almost 500 species known worldwide, mainly in Europe, Central and South America, and Asia, and about 45 are found in almost any situation, from shady woods to open, sunny roadsides, pastures and waste areas, high country and wet lowlands. Different species assume importance in various regions of the country, but their common value is that they are late Summer and Autumn bloomers, providing nectar and pollen after many other flowers have faded. Frank Pellett, writing in *American Honey Plants* (1930), said, "The wide distribution of the group, together with the regularity of its yield, make it one of special importance to the beekeeper, although the amount of surplus gathered from Boneset is not often as large as that of many other well-known plants." The honey is generally mixed with other Fall flowers such as asters, heartsease, goldenrod, and Spanish needle.

The honey is reported as dark reddish amber in color, very thick and heavy, almost like molasses. When fresh, the odor and flavor are rank and strong, and even after some months there is a residual herbal taste and smell. It is possible the honey may contain some medicinal qualities.

In general, the Thoroughworts are tall, coarse, hardy plants with large, aromatic leaves. The white or purple flowers are borne in hand-sized flat clusters which are well-worked by bees. Of the 45 North American species, there are around 20 species valuable to bees in North America, and two of these are most prevalent. Common Thoroughwort, *Eupatorium perfoliatum,* is also called Indian sage or Ague weed. The Boneset of commerce is made from this plant, which Pellett considered "one of the best for honey in the northern states and Canada." It is native to eastern North America, growing wild in these regions, and is sometimes cultivated in gardens. The leaves of this species are perfoliate, meaning that they surround or embrace the stem.

Purple Boneset, *E. purpureum,* is much more conspicuous and is also known as Joe-Pye weed, gravel root, kidney root, turnip weed and queen of the meadow. Joe Pye was an Indian herb doctor in the Massachusetts Bay Colony who claimed that a decoction of this plant cured typhus fever. Used by Iroquois as a remedy for kidney disorders, the plant was also reputed to promote the setting of fractured bones.

The common names of these plants indicate their traditional use in medicine. In addition, the genus *Eupatorium* is a Greek name commemorating Mithridates Eupator, king of ancient Pontus, near the Black Sea, who allegedly discovered that one species was an antidote against poison. BC

B.A. Stringer grows bees, and bee plants near her home in Blodgett, Oregon.

Richard Taylor

Bee Talk

"Beekeeping, as it has always been understood and practiced by the readers of this magazine, is not a science, but an art or craft"

I have often spoken of how unpredictable bees are, and each season bears this out. It could never have been predicted, for example, that the season (1996) which began with the almost total destruction of my apiaries by mites would be the season when I would harvest one of the best honey crops in my life. And this season is no exception. There has been no sign of mites at all in my apiaries. The symptoms of tracheal mites are absent, and my periodic tests for *Varroa* are consistently negative. The colonies are strong, and the brood patterns are good. The season started out with a bang, with a brief but heavy flow, and it looked like a new record was going to be set. Then everything stopped! Almost no honey has been made since that brief early flow. The colonies continue strong, and the supers are full of bees, but almost no honey in them. Even now, mid-August, when I see vast spreads of knapweed – an excellent nectar source – hardly anything is happening in the supers. Just yesterday I checked for *Varroa* again, and found none. All the beekeepers in this area report the same. And yet, a couple hundred miles to the east, and a couple hundred miles south, beekeepers are getting record crops. Which shows again, you just never can tell.

People, too, can be pretty unpredictable. All last Winter I was swamped with requests for Chinese Evodia seeds. I'm still getting them. So when I went to the EAS meeting in Delaware a couple of weeks ago I took along a bunch of Evodia seedlings. And guess what: Hardly any of the beekeepers who saw them all spread out on the table had any idea what they were. They had never heard of Evodias. I had imagined that I would be so swamped with requests for this invaluable honey plant that I would hardly have time to draw breath. So again, you never can tell. Life is fickle.

And incidentally, my Evodia tree did not bloom this year. Too dry. Which means that I shall have no seeds to distribute this year, unless some reader who has a mature tree that made seeds can supply them. If I find a source I'll let you know in the December issue. Meanwhile, seedlings by the hundreds grow under my tree, to no purpose. But please do not ask me to ship them. I don't have time.

Meanwhile, reports from readers who received these seeds last Winter continue to come in, with many successes, and many failures, reported. There seems to be no special requirement for getting these seeds to germinate. People had good luck with them under the most diverse circumstances of weather, soil, and so on. And there is no explanation why some got no germination at all. Once again, the seemingly most obvious things are just unpredictable.

And that brings me, in a roundabout way, to my next subject, which is science, and its relationship to beekeeping.

Last Spring I went off to Michigan to take in a series of presentations by some of the leading bee scientists. This was at the college where, 60 years ago, I had taken a course in beekeeping – although by that time I had already kept bees, as a high-schooler. But far from quickening old memories, I didn't recognize a single thing. It was a totally different world. In my day an entomologist was someone who collected insects and classified them, and the place was essentially a college of agriculture. Now it is a vast research university, and the scientific projects are awesome. I came away with a freshly kindled esteem for scientists, people who devote their lives to what is the noblest undertaking available to human nature, the pursuit of knowledge and discovery *just for its own sake*, without regard to any practical value. At the same time, I must confess that it was a humbling experience to listen to a lecture, beautifully delivered, by someone half my age, and then realize, at the end of it, that I had not understood a single word of it! And this happened to me twice. It does not make one feel very smart, especially when the subject matter is bees, something about which I have long thought that I knew quite a lot.

Well, I salvaged my pride by realizing that these two learned and eloquent speakers were, after all, talking about *genetics*, about which I know nothing. It would only invite laughter if I were to set forth here what my conception of a *gene* is, and once you get beyond that I am totally lost. I have no idea whatsoever of what "DNA" might be. So no wonder I was lost. It didn't mean that I know nothing about bees, for in fact I know a lot about bees. It's just that I don't know anything about bee genetics, or any other kind of genetics.

Some of the other talks I followed well enough, especially those having to do with communication among bees, the dance language, and so on. Here I was hearing bee

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BEE TALK ... Cont. From Pg. 51

researchers who are at the very forefront of their science, and they were impressive indeed, not only in what they knew, but in their dedication to their work. I wanted to take lots of notes on these, but the talks were so packed that, at the end of them, I found that I had been able to write down the speaker's name, and that's all. Still, I learned quite a lot.

All this got me to thinking about the connection between science and beekeeping, and I realized that there is almost no connection at all. I don't remember even hearing the word "honey" in these talks, much less words like "extractors" and "honey house." I doubt that a single speaker there is a beekeeper. Some, indeed, had as the subjects of their research species of Asian bees I had never heard of, insects that hardly resemble honey bees at all.

And this brings me to the point that beekeeping, as it has always been understood and practiced by the readers of this magazine, is not a science, but an art or craft. Someone can be a first-rate beekeeper, a master of his craft, and a complete ignoramus in science. I've known and admired many such people. Similarly, someone can be a fine scientist, and even a bee scientist, and an incompetent beekeeper. This is worth pointing out because bee researchers, it seems to me, sometimes speak condescendingly of the methods of ordinary beekeepers, and especially of their reliance on anecdotal evidence, consisting only of observations passed along from one beekeeper to another. We should not, they say, accept anything as true until it has been proved by the rigorous and painstaking methods of scientific experimentation. Dr. Winston, in the August issue of this magazine, takes this view, suggesting that you don't learn much from anecdotal evidence except that the author of it is a good storyteller. Well now, if you pick up any good manual of beekeeping you will find that its recommendations rest almost entirely on anecdotal evidence, things the author has discovered while working with his bees, or picked up from other beekeepers doing the same thing. That's how the art or craft of beekeeping is advanced. To be sure, a good beekeeper takes advantage of genuine scientific discovery, but you'll never be much of a beekeeper if you take no step without first subjecting it to scientific proof. How did I learn that, for example, a swarm of bees can be made to stay put in a hive by giving it a comb of brood? Or that if you raise a comb of brood up to a swarm clustered high in a tree then most of the bees, and the queen, will gather upon it? Or that you can get a bumper crop from a colony by hiving a swarm at the original hive stand and moving the parent colony off to the side? I could fill several pages with observations of this sort, all of them purely anecdotal. Things of this sort rest upon no scientific proof or experimentation, but they are basic to the art or craft of good beekeeping.

Dr. Winston, sometimes employing expressions such as "we scientists," writes that "scientists tremble at the thought of believing an unproved statement." Well now, do they really? A scientist, just like you or me, gets up in the morning believing, for example, it will be a good day for a picnic. Or she believes her pension fund is secure. Or her children will finish college in good shape – things of that sort. And all without any trembling at all. Scientists even engage sometimes in scientific controversy, expressing opposing opinions on such questions as the time and place of human origins, but without trembling. A distinguished biologist wrote a book expressing views in the area of sociobiology that were vigorously attacked by his scientific colleagues. These were all unproved statements, concerning which one side or the other was certain to be mistaken. And only last week I heard Dr. Roger Morse – no stranger to science – give one of the finest talks I have ever heard, this one on the subject of swarming. Much of what he said was, he noted, as yet unproved, yet every other statement he made began with the expressions, "we believe . . ." No one noted any trembling as these unproved but enormously suggestive and valuable statements came forth from his mouth.

I venerate scientists, as I have made clear, and regard with a certain awe the achievements of those who have raised the study of honey bees to such a high level. But let us keep things in proper perspective, and bear in mind that the art of beekeeping is sometimes lifted to great heights too, often by gifted people who have no pretensions at all with respect to science. BC

Richard Taylor is a philosopher and lifelong beekeeper who lives in the Finger Lakes region of New York.

Questions?

Bees Up Top

Q **Last October I united a weak hive with a two-story hive. I could not get the bees to leave the top story and I even found a queen up there late in the month. I put her down in the second story and inserted a queen excluder. Now I have removed the excluder but the bees are still up there in the third story. What should I have done?**

Norman Sunderland
Sigel, PA

A Bees cannot be united in the Fall after they have begun to form their Winter cluster. They just will not mingle. Uniting of colonies must be done while the bees are still active.

Is It Still Good?

Q **I had a case of one-pound jars of honey stored in the basement since 1994. I found the cardboard carton sticky with honey, and the jars were also wet, as if the honey had pushed its way through the covers. There was also a faint odor and an off taste. Can I still use this honey? Can it be used for baking? Can it be fed back to the bees?**

Benjamin Cobb
Newton Centre, MA

A The honey has begun fermenting, as honey always will if exposed to dampness. It should never be stored in a basement, even when properly packed. Honey that is high in moisture content will eventually ferment even if stored in a dry place. The surest way of storing honey, though one that is seldom necessary and often impractical, is in a freezer, where it can be kept for years without fermenting and, usually, without granulating. Yes, you can still use it, but do not sell it or give it to others, as it is seriously below standard. It can be used for baking, and it can be fed back to bees.

Changing Bottoms

Q **What do you think of changing bottom boards a few times during the Winter to help control nosema?**

Bill Burke
Astoria, OR

A I have never heard of doing this, but I should think that there are effective ways of keeping the bottom boards clean in Winter with much less labor. Thus, if a hive is tilted forward then there is very little accumulation of dead bees and debris. In addition, I insert quarter-inch hardware cloth in the entrances, rather than entrance cleats, to achieve a nice, wide open entrance. It can be protected against wind with a scrap of tar paper loosely fixed across the entrance.

Dead In The Cells

Q **I had six strong colonies in the Fall and all seemed in good condition for Winter. We had a mild but very wet Winter, and this Spring one colony was dead, with lots of bees still on the combs in the lower hive body and even more piled up on the bottom board. There was still lots of honey in the upper story, but none in the lower one, where many of the bees had died with their heads in the cells of the combs. They had been treated for *Varroa,* tracheal mites, nosema and foulbrood. Could they have starved? Or died from queenlessness? Or some disease? My other five colonies came through in great shape.**

John Searcy
Dannard, AR

A It is impossible to say for sure, but since the other colonies were strong it is very unlikely that mites were the problem. Also, there are seldom many dead bees in a hive killed off by mites. Queenlessness seldom results in a Winter kill, but it does cause severe decrease in population. There would not have been lots of dead bees had loss of queen been the problem. Nosema is a possibility, but not likely, since the bees were treated and you make no mention of staining on the hive or combs. The best bet is that they starved, in spite of the ample stores. Sometimes a cluster just does not move up to where the stores are, especially when the Winter is long and severe – though it was not, in this case. The other possibility is poor ventilation, or even suffocation. A Winter cluster gives off lots of moisture, and unless this can escape from the top part of the hive it can cause severe stress and colony death.

Killing AFB

Q **Two of my colonies came down with AFB and I burned the combs and frames, even though the bee inspector said I could save the combs and melt them down, as the AFB spores would be killed at the 140°F melting point of beeswax. My bee book, however, says that after burning the contaminated equipment, the ashes should be buried. Certainly the fire would exceed 140°F, so why is it necessary to *bury* the ashes?**

J.B. Barrett
Gaston, IN

A It isn't really necessary to bury them, but this ensures that any contaminated honey not destroyed, isn't picked up..

Questions are eagerly solicited. Send them to Dr. Richard Taylor, Box 352, Interlaken, New York 14847 (not Medina) and enclose a stamped envelope for direct response.

Answers!

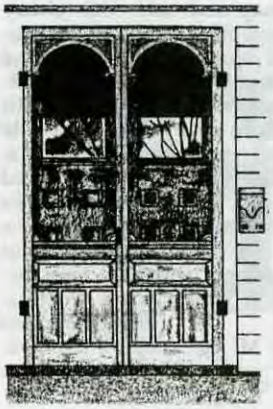
Richard Taylor

?Do You Know? Answers

1. **False** The primary use of slatted racks is to reduce the swarming impulse in the spring by spreading out the colony population. The racks provide additional protection to the combs directly above them, which enables the bees to raise more brood in the bottom brood chamber.
2. **False** Cells containing young worker larvae when the egg hatches are mass provisioned with royal jelly produced by the hypopharyngeal and mandibular glands of nurse bees. Each cell receives a supply of royal jelly that lasts approximately 2-2½ days. On the third day the food supply is primarily from the hypopharyngeal glands and some pollen and honey are fed directly to the larvae.
3. **False** In the Fall the cluster of bees should be found in the lower part of the hive, below food stores since the cluster moves upward during the Winter.
4. **False** In estimating the amount of winter stores, the beekeeper should use the following values for estimating the amount of honey contained in the following size combs. A full depth comb will hold approximately 6 pounds of honey, a medium depth comb 3 pounds and a shallow depth 2.5 pounds.
5. **True** During the crystallization of honey the fluid content between the crystals increases in water content by about 4 to 6 % as the crystals form thus possibly setting up conditions that could result in fermentation or honey spoilage.
6. **True** Foraging worker honey bees fly at a different height than either the queen or drones. The worker's flight path is below eight meters and they seldom fly higher than this. Queens or drones flying below this level are apt to be attacked by workers.
7. **False** Nosema disease is an adult honey bee disease that is caused by a spore-forming protozoan, Nosema apis. It invades the digestive tracts of workers, drones and queens.
8. **True** Colonies should not be wintered on foundation, and all queen excluders should be removed. These two items will interfere with the formation of the winter cluster and movement of the cluster upwards, as the Winter progresses.
9. **False** Fumidil-B (fumagillin) is fed to colonies in the fall to suppress nosema disease in overwintered colonies. It is not registered or effective against sacbrood disease.
10. **False** Frames of honey should be at least three-fourths capped before they are removed from the colony. The number of partially capped combs should be kept to a minimum, however, otherwise there will be problems with high-moisture honey.
11. **False** Fumidil-B (fumagillin) treatments are most effective when fed with sugar syrup. Research has shown fumagillinis effectiveness is limited when fed with powdered sugar, extender patties, candy or pollen supplements.
12. **True** The primary navigation mechanism used by honey bees is sun compass orientation, by which workers cannot only orient to the sun's position but also compensate for its diurnal movement through the sky.
13. **False** When the temperature of the air immediately surrounding the bee reaches 57*f*F (14*f*C) the cluster becomes well defined. The colder the temperature, the more compact the cluster becomes.
14. C) Brain
15. E) Red
16. The straining or filtering of honey will delay crystallization by removing particulate matter from the honey, i.e. pollen grains, bits of wax and other impurities that may have been introduced during uncapping and extraction. In order for a crystal to develop it is necessary to have a substrate on which the crystal can form.
17. Two types of perforations may be observed in capped brood; one type indicates that the colony has a problem while the other type does not signify anything wrong. As bees seal up their brood cells, there is a stage when there is a small round hole in the center of the cap. The round holes in the center of the capping indicate a healthy condition and are very different from the perforations in cells containing dead brood from American foulbrood or some other problem (chilled brood, overheated brood etc.). These bad cells often have sunken cappings and the perforations are ragged, triangular and the edges appear to be somewhat greasy.
18. Saliva, Propolis
19. C) Tips of the workers forelegs
20. E) Enlarged first tarsal joint of the hind leg
21. B) Sense organs at the tip of the antennae
22. D) Mandibles
23. A) Hair plates at the base of the neck

There were a possible 25 points in the test this month. Check below to determine how you did. If you scored less than 12 points, do not be discouraged. Keep reading and studying- you will do better in the future.

Number Of Points Correct
25-18 Excellent
17-15 Good
14-12 Fair



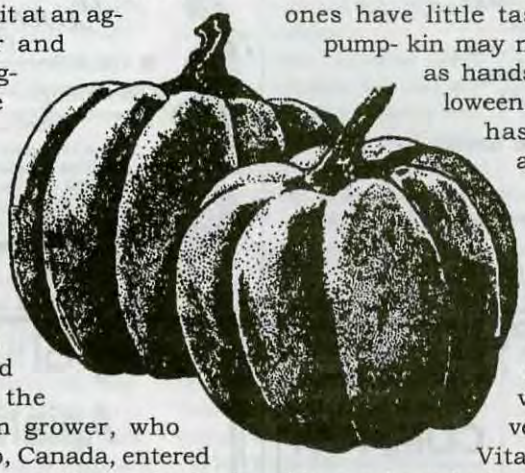
Ann Harman

Home Harmony

It's Pumpkin Time!

October is a wonderful month for celebrating pumpkins. Drive down any road and you will see fields of gorgeous orange globes. In addition you will see mountains of pumpkins at roadside stands where you can select anything from one that fits in the palm of your hand to one that fills the back of your pickup.

It is always fun to visit the pumpkin exhibit at an agricultural fair and see what the biggest one weighs. Evidently a record setter weighed in at 900 pounds. I don't have the information on that one but I did find out that the first champion grower, who lived in Ontario, Canada, entered a 400-pound pumpkin in the Paris World's Fair in 1900. Now just how did he get that pumpkin from Ontario to Paris?



We need to thank honey bees for our pumpkins. Yes, even some thanks to the bumble bees, too. Pumpkins require pollination to transfer pollen from the male flower to the female. The bees will work the blossoms early in the morning since the flowers close up anywhere from 9 am to noon, depending on the temperature. Although honey bees are small when compared to the size of pumpkin flowers, the fact that large numbers of honey bees visit the blossoms helps to insure adequate pollination. The bees evidently visit primarily for nectar collecting.

Pumpkins are a native of China where it is called the "Emperor of the Garden", a fitting term considering giant pumpkin size. The Chinese consider pumpkins, and pumpkin seeds, to have many health attributes. The blossom, as a squash blossom, is depicted in Hopi Indian jewelry as a fertility symbol.

If you plan to grow pumpkins for cooking, select one suited to that use. Some of the Jack-O'Lantern ones have little taste. A cooking pumpkin may not be as big or as handsome as a Halloween pumpkin but it has thicker flesh and a rich flavor. Just about everyone makes a pumpkin pie for Thanksgiving. But pumpkin is a very versatile vegetable, rich in Vitamin A. Pumpkin can be substituted for the various winter squashes, and even sweet potato, in a number of recipes. Don't limit yourself to pie; treat pumpkin as you would any other vegetable.

You can use canned pumpkin puree, but if you have a cooking pumpkin you can easily and quickly make it ready for use. Cut the pumpkin in half or in chunks, remove the seeds and fibers and put it into the oven at about 325 - 350°F and cook until the flesh is soft. Peel the skin off and mash up the pulp. Then you are ready to use it in many recipes. In fact, this next recipe is very simple because it is basically plain pumpkin.

BAKED PUMPKIN

1 pumpkin cut in wedges
honey
nutmeg
raisins
salt

Bake wedges at 350°F until pulp is soft. Remove skin from pulp. Mash with remaining ingredients according to preferences of flavors and consistency. Can be served on toast or English muffins.

Garden Way's Zucchini Cookbook

PUMPKIN CUSTARD

The smooth texture of pumpkin lends itself well to puddings and custards. Both are quick and simple.

2/3 cup cooked, mashed pumpkin
1-1/2 cups milk
2 tablespoons honey
2 eggs

Butter 6 custard cups and prepare a pan of hot water an inch deep to hold them. Beat the eggs to mix thoroughly; add the other ingredients, blending until smooth. These can be whirled in a blender to mix. Divide among the custard cups; place in hot water bath and bake at 325°F for 30 minutes, or until only the center jiggles. Delicate and tasty at room temperature, or they may be served chilled.

Honey Feast
Gene Opton & Nancie Hughes

PUMPKIN RAISIN PUDDING

2 cups pumpkin, cooked and chopped
1 cup milk
2 tablespoons whole wheat pastry flour
1/2 cup raisins
1/4 to 1/2 cup honey (sweeten to your taste)
4 tablespoons butter
1 tablespoon vanilla
1 teaspoon ground ginger
1 teaspoon cinnamon
1/4 teaspoon cloves
1 tablespoon sherry (optional)

Combine the pumpkin, milk and flour and blend until creamy. Pour into a

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saucepan and add the remaining ingredients, except the sherry. Cook for 30 minutes, then stir in the sherry. Cook for a few more minutes and remove from heat. Serve warm. Makes 6 servings.

Honey & Spice
Lorena Laforest Bass

PUMPKIN-PECAN BISCUITS

Biscuits are a versatile bread. You can serve them for breakfast or dinner, or with soup and a salad for lunch. Try these biscuits with baked ham or smoked turkey.

2 cups all-purpose flour
1/4 cup honey
4 teaspoons baking powder
1/2 teaspoon salt
1/2 teaspoon ground cinnamon
1/4 teaspoon ground nutmeg
1/8 teaspoon ground cloves
1/2 cup chilled butter, cut into small pieces
1/2 cup coarsely chopped pecans
2/3 cup pumpkin puree
1/2 cup half-and-half

In a medium bowl, mix together flour, baking powder, salt, cinnamon, nutmeg and cloves. Using a pastry blender or 2 knives, cut butter into flour mixture until coarse crumbs form. Stir in nuts. Mix together pumpkin puree, honey and half-and-half. Make a well in the center of flour mixture. Add pumpkin mixture all at once to well, tossing with a fork until a dough forms. Depending on the honey and the pumpkin puree, it may be necessary to add a bit more flour. On a floured surface, knead dough for 1 minute. Using a floured rolling pin, roll dough to a 1/2-inch thickness. Using a floured 2-inch round biscuit cutter, cut out biscuits. Place biscuits, 2 inches apart, on 2 greased baking sheets. Bake at 425°F until golden, 12 to 15 minutes. Cool on wire racks. Makes 20 biscuits

Great American Home Baking

Cookies and bars make a very appropriate treat for Halloween, either for yourself or for visiting hobgoblins. If you are handing them out, you can wrap them individually in plastic and tie some orange and black ribbons on.

HONEY PUMPKIN CHEWS

1/2 cup butter, room temperature
3/4 cup honey
2 eggs
1-1/2 cups pureed pumpkin
2-1/4 cup whole wheat pastry flour
3 teaspoons baking powder
1 teaspoon salt
1/2 teaspoon ginger
1/2 teaspoon nutmeg
1 teaspoon cinnamon
1/2 cup toasted wheat germ
1 cup raisins
1 cup chopped walnuts

Cream together the butter and honey. Add eggs and pumpkin puree. Sift together the flour, baking powder, salt, spices. Add wheat germ, raisins, nuts and pumpkin mixture and stir until well blended. Drop the batter by heaped teaspoonfuls onto a greased cookie sheet. Bake at 350°F for 15 minutes or until bottoms are brown. Remove from pans to cooling rack right away. Makes about 3 dozen cookies.

Kansas Honey Producers Cookbook

HONEY PUMPKIN BARS

1-1/2 cups flour (whole wheat works well)
1 cup honey
1 teaspoon baking powder
2 teaspoons cinnamon
1/4 teaspoon nutmeg
1/4 teaspoon ground cloves
1/4 teaspoon ginger
1/4 teaspoon allspice
1/2 teaspoon salt
1 cup pumpkin puree
1/4 cup shortening
1 teaspoon vanilla
2 eggs
1/2 cup chopped dates
1/2 cup coconut
1/2 cup broken walnuts
1/2 cup sunflower seeds (optional)

Warm the honey and mix with shortening until well blended. Sift dry ingredients and spices. Beat eggs and blend in vanilla. Combine honey mixture, eggs mixture and pumpkin. Stir into flour mixture and blend well. Add dates, coconut, walnuts and seeds. Pour batter into a 13X9 inch greased pan. Bake at 350°F for 30-35 minutes or until a toothpick inserted in the middle comes out clean. Cool and cut into bars. If desired, you may frost before cutting with your favorite frosting.

Honey Recipes
compiled by MI Beekeepers Association

Keep your eye out for the Great Pumpkin. This may just be the year it rises from the Pumpkin Patch.

Gleanings

OCTOBER, 1997 • ALL THE NEWS THAT FITS

Colorado Springs Conference
QUEEN SYMPOSIUM FEATURED

"Are queens as good as they can be?" "Do your queens stop laying, but the bees don't supersede them?" "Are you having a high rate of supersedure?" "Just what's with queens these days?"

These questions and more will be the focus of a special symposium on queen bee biology, production, use . . . and problems, at the ABF Colorado Springs convention in January.

"A significant number of concerns have surfaced in the last two-three years to warrant such an intense, and in-depth symposium," says Kim Flottum, editor of *Bee Culture* magazine and coordinator of the symposium, "Queen Science, Production and Use."

Experts in their fields will examine the ins and outs of queens – from selection of the breeder stock to queen rearing to use in a production setting – from both the scientific and the practical perspective.

To cover the fundamentals of Queen Biology and Production, Dr. Marla Spivak, University of Minnesota, and Dr. Jeff Pettis, USDA ARS Beltsville Bee Lab, will be on hand to underscore the basics and more-than-basics. They will distribute a fact sheet to everyone attending.

Queen Production occurs in a variety of locations in the United States. There will be queen producers from each major region: Pat Heitkam, Northern California; Tom Glenn, Southern California; Danny Weaver, Texas; and Reg Wilbanks from the Southeast.

Queen Users, too, come from a variety of locations and have differing expectations – Honey Production, Jim Doan, New York; Honey production and Pollination, Tom Hamilton, Idaho; Professional Migratory Beekeeping, Dave Hackenburg and others in the business.

Rounding out this coverage will be the Extension specialists' perspective coming from Dr. Eric Mussen, from the University of California at Davis, and Inspectors' outlook by Tony Jadcyzk.

The Queen Science, Production and Use Symposium is scheduled for Thursday afternoon and evening, January 15, during ABF/98 – Colorado Springs. For general information on the convention, which will run January 14 - 18, contact the ABF Office, P.O. Box 1038, Jesup, GA 31598, ph. 912-427-4233, fax 912-427-8447, e-mail: convention@abfnet.org.

OBITUARY

A.J. Sarling, an active and well known public-spirited Alberta beekeeper was found dead on July 18, 1997.

A.J. will be sorely missed by his friends and the industry. According to early reports, he was found under his honey-house after it was noticed that he had not returned from working on the pump. It is possible that the cause of death may have been electrocution.

He leaves behind his wife Katheryn and son Zachary of Sunset House; parents, John and Jo Sarling; sisters, Elsa (Mick) Smith, Catherine (Russell) Bishop and children Dominic and Zoe, Emma Dooner and daughter Molly, all of England; as well as numerous in-laws and friends.

Winners Everywhere
APPLAUSE, APPLAUSE

The Eastern Apicultural Society of North America has awarded two $2,000 grants to honey bee researchers. Research proposals submitted by **Keith R. Tignor**, Department of Entomology, Virginia Polytechnic Institute and State University and **Diana Sammataro**, Department of Entomology, The Ohio State University, OARDC, Bee Lab were selected for funding. Tignor's research concerns the effect of formic acid on honey bee queen egg laying capacity, providing beekeepers with information regarding the potential side effects of formic acid when it becomes available for general use. Sammataro is currently studying the effects of essential oils for controlling parasitic bee mites, with laboratory testing of a number of oils on bee mites, field tests of those oils which are determined to eliminate mites using a variety of delivery methods and observation of the side effects of essential oils on the honey bees and hive products.

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Walter Steven Sheppard, Associate Professor in the Department of Entomology, Washington State University (WSU), was named the recipient of the Hambleton Award at the 1997 EAS Conference hosted by the University of Delaware. Dr. Sheppard was appointed to his position at WSU in 1996 and his apiculture program is supported by the Thurber Endowed Chair. Prior to 1996, Dr. Sheppard was a research entomologist at the USDA, ARS Bee Research Laboratory in Beltsville, MD. He received the Bachelor of Science degree in zoology from the University of Georgia (1975) and the M. S. (1979) and Ph.D. (1986) degrees in Entomology from the University of Illinois.

His research contributions have been primarily in the areas of honey bee genetics and systematics, population genetics of colonizing insects, and parasitic mites of honey bees. He has made substantial contributions to our understanding concerning the process of Africanization through the application of molecular systematic techniques. While employed by the USDA, he established a laboratory for the morphological identification of honey bee samples intercepted by APHIS, involved in stinging incidents, and collected from APHIS and University trap lines as part of the Agency-wide effort to monitor the spread of Africanized honey bees. In addition to working with Africanized honey bees, he has investigated racial variation in Old and New World honey bees. A study of over 600 feral colonies in the United States provided genetic evidence for the influence of early introductions of European and African subspecies to North America.

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Elizabeth Capaldi was presented the outstanding graduate student award at the same EAS Conference. Miss Capaldi received a B.S. in biology in 1990 from Trinity College in Hartford, Connecticut and a Ph.D. in zoology in December 1996 from Michigan State University. The title of her dissertation was "Acquisition of Visual Spatial Memory: Orientation and Reorientation Flights in the Honey Bee." Currently, Elizabeth is serving as a Postdoctoral Research Fellow in the Department of Entomology at the University of Illinois. She is working in the laboratory of Gene Robinson, and will continue to study the role of mushroom bodies within the brain and hormones

Continued on Next Page

Applause ... Cont. From Pg. 57

in honey bee learning.

The outstanding graduate student award is sponsored by Brian Sherriff in memory of his wife, Pat.

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The Western Apicultural Society (WAS) selected **Gloria DeGrandi-Hoffman** as the 1997 recipient of the 1997 award for Outstanding Service to Beekeeping, for her numerous scientific contributions that have benefited the beekeeping industry and crop production systems that rely on honey bees for pollination.

She constructed and validated the first cross-pollination and fruit set simulation models for apple and almond growers that take into consideration daily weather conditions, orchard conditions, and honey bee visitation data and can generate site-specific fruit/nut set predictions at any time during bloom. Estimates generated by the grower can be used to time colony movement into and out of orchards, and thus optimize pollination under a wide range of bloom and weather conditions, which are evaluated continuously as the season progresses. These programs are available as public domain software.

Gloria also constructed and validated the first honey bee colony population dynamics and genetics models for honey bees. These models are providing direction and new perspectives for research, especially in the areas of parasitic mites, the effects of pesticides on honey bees, and the process of Africanization of honey bee populations.

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Also at the WAS meeting in August, **Ed and Dee Lusby** were awarded the rare Roy Thurber/A.I. Root Award for contributions made to the benefit of the everyday beekeeper. Their work on demonstrating the value of using foundation with base cell size of normal size, rather than enhanced size has led to further research on disease and mite control.

They have, for nearly a decade, championed their beliefs, and industry and scientific concerns are finally seeing the value of their ideas.

Last awarded in 1987, in Canada, this prestigious award is based on Roy Thurber's ideas of simplify beekeeping, and The A.I. Root Company's (and *Bee Culture* Magazine) support of good ideas and quality work.

HONEY BOARD NEWS

Recent Retail Sales Data From Nielsen

Nielsen reported that retail honey sales were down 3.4 percent (pounds) and up 3.7 percent (dollars) for the four-week period ending July 5 (versus the equivalent period in 1996). For the 52-week period ending July 5, honey sales were down 3.8 percent (pounds) and up 16.3 percent (dollars). The average price per pound for honey during this period was $2.35.

The Latest Numbers From Research Dimensions

Research Dimensions' packer tracking study, based on data from 15 honey packers representing approximately 50 percent of all honey sold, reported that total honey sales in June were up 19.37 percent over June of last year. Following are changes by segment:

Export ..... +4.7%
Retail ..... +23.6%
Foodservice ... +2.7%
Bulk ..... +23.2%

ALMONDS DO BETTER

A plum called Deep Purple might help almond growers who today can't produce the country's top almond variety – Nonpareil – because of root-destroying nematodes and soggy soils. Almond trees don't root readily and are suscpetible to nematodes. To bypass these problems, almond budwood typically is grafted to botanical relatives such as peach (for well-drained orchards) or plum (for sodden sites). Nonpareil can't be grafted onto certain choice plum rootstocks, but preliminary ARS tests indicate Deep purple might fit the bill. For the experiments, ARS scientists grafted budwood of several almond relatives onto Deep Purple rootstock. The grafts remain strong four years later. Also, Deep Purple outperformed other rootstocks in tolerating bacterial canker and two kinds of nematodes. A hardy plum introduced by the University of Minnesota in 1965, Deep Purple hadn't been tried before as rootstock for almonds. This Spring, several dozen cuttings of Nonpareil budwood were grafted onto Deep purple rootstock for test plantings in California. That state produces 99 percent of America's almond harvest, worth more than $1 billion to growers in 1996

Horticultural Crops Research Lab, Fresno, CA
Craig A. Ledbetter, (209) 453-3064,
jlister@qnis.net

FTC BANISHES MARKETERS

The Federal Trade Commission has won a default judgment against a now-shuttered wall coverings firm and a court order banning two executives from the telemarketing industry for life.

In Chicago, U.S. Magistrate Ian Levin signed an order directing Worldwide Wall Coverings and Blinds Inc., Northbrook, IL, to pay the agency $437,643 for consumer refunds. Levin issued the order after the firm declined to defend itself against charges of violating the FTC's Mail or Telephone Order Merchandise Rule since 1995 **by failing to fill prepaid customer orders ranging from $12 to $6,000.**

The FTC suit alleged that Bruce Sears, the firm's owner, and Martha Kazak, its president, kept the money instead of filling customers orders. FTC officials expressed doubt they would be able to collect any part of the judgment since the firm owed more than $1 million to its suppliers. Sears was barred from the mail order and telemarketing industries for life under an earlier agreement with the FTC.

UK FIGHTS *VARROA*

A British House of Lords committee has called for the government to spend more time and money fighting the *Varroa* mite.

"The impact of *Varroa* in particular is something which beekeepers should not be expected to cope with without assistance," the Lords' European Communities Committee said in a recently published report.

The report, noting the government had only allocated $320,000 on *Varroa* research, said beekeepers had made a cogent case for increased publicly funded research on the detection and control of the disease.

It said the government should look to European Union joint-financing schemes to get more cash for the research.

The committee said the Ministry of Agriculture should also help beekeepers with a systematic program of education on how to curb the parasite.

ROYAL JELLY LABEL?

The Australian government ordered a stronger warning on royal jelly products after the death of a 23-year-old woman who suffered an allergic reaction.

But the Australian Medical Association (AMA) said the new labeling still does not go far enough.

The new wording states "avoid if asthma or allergy sufferer."

That's a slight up grade from the previous "is not recommended for asthma or allergy sufferers as it can cause severe allergic reactions."

AMA president Keith Woollard wants the labels to say the product can kill.

"It's truth in advertising," he said. "People need to know it can be lethal."

A coroner who conducted a hearing on the death had recommended royal jelly products be banned until after clinical trials.

The Adverse Drug Reaction Advisory Committee, a federal body, said it knew of three fatalities and 16 allergic reactions attributable to royal jelly.

The Nutritional Foods Assn. (NFA) opposes a fatality warning because it would set a precedent.

"It would require other foods such as peanuts and shellfish to be similarly labeled," she said.

Senator Chris Ellison, the parliamentary health secretary, said the new labels for royal jelly – which must be in place within two months – are a short-term measure.

Two Become One

STOLLER COMPANIES COMBINE

Two strong honey producers, who have shared the same well-recognized name for 45 years, have announced a business combination that will allow them to pursue future business opportunities more effectively.

On August 13, 1997, W. Stoller's honey completed a "friendly acquisition" of the business of Stoller Honey Farms. Both companies are headquartered in Latty, OH.

"This is a logical step for both companies," said Dwight Stoller, president of W. Stoller's Honey. "We have complementary lines of business which should integrate easily to benefit customers and vendors. At the same time, it allows us to take advantage of the strategic benefits of a single brand, combined production and marketing, and additional business opportunities.

The sales and distribution functions will be unchanged. The only change will involve the move of the Stoller Honey Farms production to the W. Stoller's Honey plant. No other changes are expected immediately.

Largest Gets Larger

NOVARTIS GROWS AGAIN

One of the world's largest agricultural chemical companies just got a little larger. Novartis has completed the $910 million acquisition of Merck & Co., Inc.'s crop protection business. Merck's crop protection business posted 1996 sales of $200 million worldwide and will significantly boost Novartis' insecticide and fungicide sales. In other Novartis news, the company has merged its four U.S. seed companies – Rogers, NK, S&G, and Hilleshog – into a single legal entity named Novartis Seeds. The move is a result of the December, 1996 merger between Sandoz and Ciba-Geigy that formed Novartis. It will not affect product marketing or distribution.

Vita (Europe) Ltd.

A NEW HEALTH COMPANY

On July 8, 1997, Vita (Europe) Ltd. And Novartis Animal health UK Ltd., together with Novartis AG, Basel and Novartis Produkte AG, Animal Health Sector, Basel, Switzerland, signed an agreement which transferred Novartis' bee health business to Vita (Europe) Ltd.

Under this Agreement the parties have agreed that all rights and contracts for the supply and purchase of **Apistan** (excluding USA and Canada), **Apitol** and **Folbex** shall be assigned to Vita (Europe) Limited as of June 1, 1997. The new company is also developing a new product effective against *Varroa* and other bee diseases.

Vita (Europe) will continue to pursue the registration of Apistan in the UK. European registration for the new product will be made initially in Italy, with registration in the UK, Germany, Austria, France and Denmark following soon afterwards. Although Vita (Europe) has acquired the rights to Folbex, manufacture of this product is to cease.

The new company is headed by Jeremy Owen and Dr. Max Watkins, who previously ran the Bee Business for Sandoz in Europe, North Africa and the Middle East.

Vita (Europe) Ltd. Is based at Brook House, Alencon Link, Basingstoke, Hampshire.

Reprinted From Bee Craft, UK

WHAT MAKES A SUCCESSFUL MARKETER?

The characteristics of a successful marketer include the following:

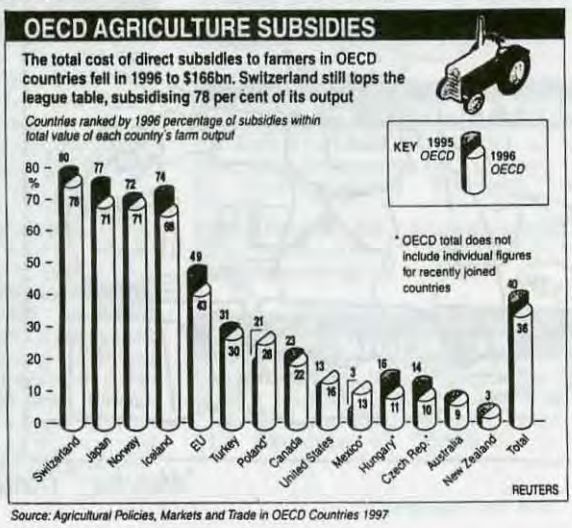
- Be willing to make decisions.
- Know how to make decisions.
- Follow a logical thought pattern.
- Control your ego.
- Control your emotions. Greed, hope and fear are dangerous obstacles.
- Set realistic goals and expectations.
- Know the marketing tools available thoroughly and be willing to use them.
- Know both fundamental and technical analysis thoroughly.
- Recognize information is part of the decision-making process, but it's more important to know how to use that information.
- Rely on one to three outside sources for ideas and analysis of the markets.
- Spend an average of at least 20 minutes per day on marketing.
- Be willing to be a bear as well as a bull. Markets aren't always going to go up from their current level.
- Plan for two contingencies: The market may perform as you expect or it may not. Be prepared for either scenario.
- Be willing to accept responsibility for your decisions.
- Be a good loser (but not too often).
- Know in advance your definition of success. And don't forget to enjoy it if your strategies work so that you meet that definition.

GLOBAL FARM SUBSIDIES

New Zealand pays the least in subsidies to its farmers out of the 24 OECD countries, an Organization for Economic Cooperation and Development report says. New Zealand axed most support for farmers several years ago and earns glowing praise from the OECD. Switzerland remains proportionately the most generous OECD country to its farmers, with its mainly environmental aid accounting for four-fifths of the value of all crops produced. Japan, which heavily protects rice, is not far behind, and the 15-nation European Union is above the OECD's average with 43 percent of the value of its crops loaded with subsidies. The U.S. is in ninth position, with 16 percent of its farm output coming from subsidies in 1996 (up from 13 percent in the previous year).

The OECD recognizes there is no direct support paid to farmers in New Zealand, although it still measures 'public good' expenditure in such areas as research, pest and disease control, food safety and the environment as a subsidy of sorts. In its overall evaluation the OECD says that since 1987-1988 policy changes in New Zealand have significantly and continually improved the market orientation of producers, with there now being no significant barriers to the transmission of world prices to the domestic market.

Policy changes in 1996 further reinforced the assessment of New Zealand as the OECD country that has reformed its agricultural policies most comprehensively, with support remaining one of the lowest among OECD nations.



Source: Agricultural Policies, Markets and Trade in OECD Countries 1997

RURAL HERITAGE – bi-monthly magazine in support of farming and logging with horses, mules, and oxen. Subscription includes THE EVENER Workhorse, Mule & Oxen Directory; $22 for 6 issues; sample $6. Rural Heritage, 281-B Dean Ridge Lane, Gainesboro, TN 38562.

WANT INFORMATION ON EXOTIC animals & the marketplace? Subscribe to Wings & Hooves. $16 yr. Dept. 1, Rt. 1, Box 32, Forestburg, TX 76239-9706.

THE SCOTTISH BEEKEEPER. Magazine of The Scottish Beekeepers' Assoc. Rates from D.B.N. Blair, 44 Dalhousie Rd., Kilbarchan, Renfrewshire, PA 10 2AT, Scotland, U.K. Sample on request. $1.

DIE NEUE BIENENZUCHT Monthly magazine for beekeepers interested in German beekeeping. Hamburger Str. 109, D-2360 Bad Segeberg, West Germany.

IBRA: INFORMATION AT YOUR FINGERTIPS. IBRA is *the* information service for beekeepers, extension workers and scientists. Our members support this service and enjoy the benefits of belonging to IBRA, which includes *Bee World*. We need your involvement - join IBRA - support this important information network and extend your beekeeping horizons. For more information contact: IBRA, 18 North Road, Cardiff CF1 3DY, UK. Telephone (+44) 1222 372409. Fax (+44) 1222 665522.

SCOTTISH BEE JOURNAL. Monthly magazine. Sample copy from Robert NH Skilling, FRSA, 34 Rennie St., Kilmarnock, Scotland. $4. per annum.

BEE CRAFT – Monthly journal of the British Beekeepers Association. Subscription, including postage is £13.68 surface mail to Mr. L. Connor, P.O. 817, Cheshire, CT 06410.

THE AMERICAN BEEKEEPING FEDERATION needs your support in efforts to stop adulteration, improve marketing conditions and encourage research on African Bees and Varroa and Acarine Mites. For information, membership application and sample of bimonthly News Letter write to: THE AMERICAN BEEKEEPING FEDERATION, INC., P.O. Box 1038, Jesup, GA 31545-1038.

IRISH BEEKEEPING. Read An Beachaire (The Irish Beekeeper) Published monthly. Subscription $15.00/year, post free. Mr. Seamns Reddy, 8 Tower View Park, Kildare.

THE AUSTRALASIAN BEEKEEPER. Published monthly by Pender Beekeeping Supplies Pty. Ltd. Send request to: The Australasian Beekeeper, PMB 19, Maitland NSW 2320, Australia. Sub. $US 27.00 per annum, Surface Mail (in advance). Payment by Bank Draft. Sample free on request.

RARE BREEDS JOURNAL. Bi-monthly journal about exotic, minor & rare breeds of domesticated animals & their owners. $18.00 (U.S.)/year, $24.00 Foreign; $2.50 for sample copy. Rare Breeds Journal, Dept. Bee, HCR 1, Box 45, Hebron, ND 58638 (701) 878-4970.

BRITISH BEE JOURNAL. Monthly single copies 33p plus postage. $15.00/yr. U.S. Annual subscription post paid. Sub-agent: 46 Queen St., Geddington, NR Kettering, Northants, NN14 1AZ, England.

Bee interested. For beekeeping information read the AMER. BEE JOUR. New editorial emphasis on practical down-to-earth material, including question & answer section. For information or free copy, write to: AMERICAN BEE JOUR., Hamilton, IL 62341.

THE AUSTRALIAN BEE JOUR. Monthly, SeaMail $35.00 (Aus.), AirMail $50.00 (Aus.). Write to: Victorian Apiarists' Association Inc., Editor, Ms. Eileen McDonald, R.S.D. McKenzies Hill, Castlemaine, Victoria, 3450 Australia. Sample on request.

ANIMALS EXOTIC & SMALL The premier journal of the Exotic and Miniature animal industry. Subscriptions $10.00/one year, $19.00/two years, $29.00/three years U.S. MasterCard, Visa, American Express and Discover welcome. AES, 1320 Mountain Ave., Norco, CA 91760-2852 (909) 371-4307 FAX (909) 371-4779 e-mail AES01@aol.com.

THE NEW ZEALAND BEEKEEPER. Published 11 times a year Feb - Dec. by the National Beekeeper's Association of NZ. Write for rates & indicate whether airmail or surface mail. NZ BEEKEEPER, Farming House, 211-213 Market Street South, P.O. Box 307, Hastings, NZ.

SOUTH AFRICAN BEE JOURNAL. The official organization of the S.A. Federation of Bee-Farmers' Associations. Published bimonthly in English and Africaans, primarily devoted to the African and Cape Bee races. Subscriptions including postage (six copies). 1995 all subscribers outside of South Africa R100-00 surface mail, payment to be made in S.A. Rands. NB. Sample copies only available on receipt of a donation. P.O. Box 41 Modderfontein, 1645, South Africa.

INDIAN BEE JOURNAL: Beekeeping developments in India, issued quarterly. Annual Subscription (foreign; including surface mail): U.S. $20 for individuals and U.S. $40 for institutions, by Bank Draft payable in Pune (India) drawn in favour of *Indian Bee Journal, Pune* and sent to Dr. K.K. Kshirsagar, Editor, 1294 Shukrawar Peth, Pune 411 002, India.

BOTTOM ... Cont. From Pg. 64

that reversible extractors were put upon the market, notwithstanding the fact that Thomas William Cowan, editor of the *British Bee Journal*, introduced in 1875, and put into use what we now call the Cowan extractor. It was nearly 20 years before this extractor was advertised and sold to any extent, at least in this country; and the fact that the reversing feature was adopted after this lapse of time is a pretty good evidence that it was good. Indeed, after looking over all the different plans of reversible machines, the Root Company adopted this as the simplest and most efficient.

BC

INNER ... Cont. From Pg. 6

were bees on it all the time, they weren't stinging the strap, just testing it, I guess. Then they'd go away.

I watched one visitor who had one of those VCR cameras with the big-screen viewer. He was constantly surrounded, too. And, at the end of the day, his camera-holding hand had numerous stings in the glove. But not thousands.

Although these bees didn't carry off the smaller members of our party (movie-like terrorism), I wasn't disappointed. There were at least some bees around my face, on my camera and in the air *all the time.* You definitely *do not* want to have these in your back yard. Or any yard for that matter.

They displayed all the traits you've heard about – aggressiveness, flighty, lots and lots of brood, a tad smaller than usual, direct-into-the-colony landing patterns and black, black drones.

But the trait that fascinated me most was how they ran, and ran and ran. You'd pick up a frame and the bees on it just dripped off the edges. Imagine holding a dinner plate, with a half cup or so of warm honey on it. Tilt the plate and the honey pours off the edge, just like the bees. Then, the bees in the box literally swirled around the inside walls. I can only describe it thus: Have you ever watched someone tasting wine? The long-stemmed glass is picked up and the wine is swirled around inside, around and around. That's how these bees went. Around and around. Then up over the edge and down the outside and back inside and under the frames and up the wall and around the corner and down across the floor and . . . until you put it back together and left them alone. Their movements were fluid, orchestrated. It was like watching those huge flocks of birds you see in a nature show. They lift off, go left, circle back to the right, dip down then up. And all in unison, without running into each other. Those bees may still be running for all I know.

Imagine trying to find a queen in that chaos?

No, you don't want these bees. Even if those I saw didn't puncture tires, you don't want these bees. Ever.

Kim Flottum

DISPLAY INDEX

J.L. Peabody and The Honey Extractor

by E.R. Root

At the close of one of the sessions of the Colorado state convention, an elderly gentleman with a very pleasant face stepped forward and introduced himself as Peabody, adding that he had known my father for many years. On shaking hands with him I kept saying "Peabody" to myself several times, wondering why the name was familiar. "Peabody?" said I. "Why, as a mere boy I used to hear of a man by that name who invented the honey extractor, the first such machine that was ever put on the market in the United States."

"I believe I am the man," said he, and then as it dawned upon me that I was addressing one of the old veterans of the 60s and 70s in the days when Langstroth, Wagner, Gallup, Adair, Quinby, Tupper, King, and others were the leading lights, I felt as if I wanted to take off my hat, and I did, before the man who stood before me. "Indeed!" said I, grasping his hand again, for another shake. "And so this is Mr. Peabody, the extractor man, is it?"

He modestly assented, and then, changing the subject, said it would give him pleasure to have me take dinner with him, for he lived only a short distance from the capitol building where the convention was being held.

That day we talked over not only men and things of the apicultural world, but our thoughts drifted toward the church, Sunday school, and temperance. Both Mrs. Peabody and her sister are ardent workers in the church and Sunday school, and it is real inspiration and pleasure to meet them.

No wonder the name "Peabody" sounded familiar to me. There is Henry W. Peabody, the great exporter, of New York, a cousin of J.L.; H.O. Peabody, the inventor of the Peabody rifle, his brother; and then there was George Peabody, the great London philanthropist, who gave $18 million to improve the residences of the poor in London. J.L. Peabody, like the women of his household, is also interested in church work. While he has, perhaps, retired from active business, he seems to take an active interest in all lines of Christian work.

J.L. Peabody, the beekeeper of years ago, brought out his extractor in 1870, it having been patented in 1869. I believe this was the first American honey extractor, and perhaps the first in the world, that was ever put on the market. At that time it was styled a "honey-emptying machine." Prior to the advent of this extractor, Langstroth and his son built a machine in 1867, somewhat like the one invented by Hruschka himself, the Austrian who invented the honey extractor. Soon after this, A.I. Root built the first *all-metal* machine, and I think he was the first one to use a gearing by which one turn of the crank would revolve the comb-basket two or three times; but it was not advertised until some time after Mr. Peabody placed his on the market.

The Peabody was a beautiful little machine, and so neatly gotten up that A.I. Root immediately concluded that his own extractor was out of the race.

Whatever neatness and mechanical excellence the Peabody possessed, J.L. says was due to his brother H.O., the mechanic who designed and built it. A man who could invent a rifle that was the sensation of army circles 20 years ago, could, as a matter of course, design a honey extractor that was well nigh perfection for that time.

Unlike the extractors that had been built previously, and unlike those of the present day, the whole can revolved. No gearing was used because Mr. Peabody supposed that a can of large diameter would not require such gearing, and accordingly none was made.

Well do I remember when this extractor was received, and it is one of the first things that I do remember in my earliest experience with things pertaining to bees. The beautiful lettering and the neat Japan work of the original Peabody leave a distinct impression on my mind now; and looking back at the old advertisements, I find that it was offered at the low price of $15, including two honey knives. This, for that day, was cheap.

Soon after, another machine, made on the same principle, was gotten out by Gray & Winder; and in looking over the old volumes of the *American Bee Journal,* I find it was advertised right alongside the Peabody. While the can of the Gray machine revolved, it was geared, and to this extent it was an improvement, but it was not so neat in general construction, nor as good, as I remember.

About this time, also, another rival honey-emptying machine was put out, called the Murphy; and this went one step further, by making the can stationary, or back to the original principle of Hruschka.

In 1873 A.I. Root started the publication of this journal, then only a quarterly, and very soon after that he began to advertise the Novice honey extractor – a machine which, in its improved form, is still on the market.

In looking over an old Peabody catalog, issued in 1870, I find a prophecy (or what I shall take to be such) from W.F. Clarke, which reads:

Now in these balmy days of honey-slinging,
The bees are kept without cessation bringing
New stores of sweets; which quickly we transfer
Into the Mel-Extracting Cylinder,
And thence, by means of force centrifugal,
Get honey by the pail or barrel full.

Clarke

On the third page of the same catalog I extract the following from the pen of E. Gallup, who had just been expatiating on the value of the honey extractor:

I have sold all my extracted honey in cans, at three pounds to the dollar, and by the pailful at 25 cents per pound, and box honey at 25 to 30 cents, the canned honey going the faster.

Extracted *three pounds for a dollar!* and comb honey up to 30¢. This was in 1871. This same E. Gallup is now writing a series of articles for the *American Bee Journal,* and if he will tell us how we can get these same prices now, we will emblazon his name in the temple of fame and write him down as greater than even Hruschka, the inventor of the machine for producing the kind of honey that he tells us brought 33-1/3 cents.

In the years that have gone by since extractors were first sold in this country, it has been clearly demonstrated that it is a mistake to construct machines with *revolving cans* or *without* gearing; and so, for the last 20 years, at least, extractors have been built with *stationary* cans, inside of which the comb pockets, reversible or nonreversible, revolve, motion being imparted by gearing so that one turn of the crank handle makes two or three turns of the baskets.

It is only within the last six or seven years

Contined on Page 62